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THE
QUARTERLY JOURNAL
OF
ECONOMICS

VOL. XXXV

AUGUST, 1921

No. 4.

CONTENTS

	PAGE
I. GENERATING CYCLES REFLECTED IN A CENTURY OF PRICES - - - - - <i>Henry Ludwell Moore</i>	503
II. FUNDAMENTAL PROBLEMS OF FEDERAL INCOME TAXATION - - - - - <i>Thomas S. Adams</i>	527
III. THE MEASUREMENT OF CHANGES OF THE GENERAL PRICE LEVEL - - - - - <i>Allyn A. Young</i>	557
VI. RECIPROCITY WITH CANADA. THE CANADIAN VIEW- POINT - - - - - <i>H. S. Patton</i>	574
REVIEW:	
Beer's History of British Socialism - - <i>Herbert Feis</i>	596
NOTES AND MEMORANDA:	
Vicissitudes in the Shipping Trade, 1870-1920 <i>E. S. Gregg</i>	603
The Literature on the Sales Tax - <i>K. M. Williamson</i>	618

CAMBRIDGE, MASS., U.S.A.
HARVARD UNIVERSITY PRESS
LONDON: HUMPHREY MILFORD
OXFORD UNIVERSITY PRESS
1921

The Quarterly Journal of Economics

Published by Harvard University

Books, periodicals, and manuscript to be addressed, EDITORS of QUARTERLY JOURNAL OF ECONOMICS, Cambridge, Mass.

Business letters to be addressed, HARVARD UNIVERSITY PRESS, Randall Hall, Cambridge, Mass. Subscription, \$5.00 a year.

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CONTENTS FOR FEBRUARY, 1921

I. THE ECONOMIC AND FINANCIAL POSITION OF FRANCE IN 1920	Gaston Jèze
II. GENERATING CYCLES OF PRODUCTS AND PRICES	Henry Ludwell Moore
III. INDEX NUMBERS OF THE TOTAL COST OF LIVING	George E. Barnett
IV. A STATISTICAL ANALYSIS OF THE RELATION BETWEEN COST AND PRICE	Kemper Simpson
V. THE RAILROADS UNDER GOVERNMENT OPERATION. I. TO THE CLOSE OF 1918	William J. Cunningham
REVIEW: Some Recent Studies on the Industrial Revolution	Conyers Read
NOTES AND MEMORANDA: Philadelphia and the Embargo of 1808	Louis Martin Sears

CONTENTS FOR MAY, 1921

I. SHOULD THE EXCESS PROFITS TAX BE REPEALED?	Thomas S. Adams
II. IS MARKET PRICE DETERMINATE?	F. W. Taussig
III. THE MEAT-PACKING INVESTIGATION: A REPLY	L. D. H. Weld
IV. THE GOVERNMENT OF THE FABIAN SOCIALIST COMMON- WEALTH	A. N. Holcombe
REVIEW: Liefmann's Grundsätze der Volkswirtschaftslehre	G. A. Kleene
NOTES AND MEMORANDA: Early History of the Term Capital	Edwin Cannan
Earning Power as a Basis of Corporate Capitalization	James C. Bonbright
William Benbow and the Origin of the General Strike	Niles Carpenter
The Lincoln Tariff Myth Finally Disposed Of	F. W. Taussig

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THE
QUARTERLY JOURNAL
OF
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AUGUST, 1921

GENERATING CYCLES REFLECTED IN A
CENTURY OF PRICES

SUMMARY

Cycles of approximately eight years in the yield per acre of British crops have probably recurred in a continuous series during the last one hundred and sixty years. In consequence of the law of demand, these crop cycles have generated corresponding cycles in the prices of food and of organic raw materials. In conformity with the law of competitive price, the cycles in the prices of food and of raw materials should have been followed by corresponding cycles in the prices of manufactured commodities. As a matter of fact, the analysis of Sauerbeck's index numbers of general wholesale prices reveals real cycles of approximately eight years in which the originating, generating crop cycles are reflected throughout the century for which the Sauerbeck index numbers have been computed.

The principal results of the investigation appear in the graphs of Figures 5 and 6.

I. Data and method, 504. — II. An analysis of a century of prices, 508. — III. Crop cycles as generating cycles, 515.

IN a recent paper ¹ I drew a distinction between generating economic cycles and derived economic cycles. Generating economic cycles were described as economic cycles that have their origin in non-economic causes and become the originating source of derived economic cycles. A careful scrutiny of American agricultural statistics revealed the existence of an eight-year gen-

¹ "Generating Cycles of Products and Prices," *Quarterly Journal of Economics*, February, 1921, pp. 215-239.

erating cycle in the yield per acre of the leading American crops, and this generating cycle of products was found to originate a derived cycle of agricultural prices. American manufactures, according to the census of 1900, obtained about 80 per cent of their raw materials from the farms, and as the prices of manufactured commodities tend to adjust themselves to the cost of production, it was argued that the eight-year cycles in the prices of farm products tended to induce derivative cycles in the prices of manufactured commodities. The major features of economic cycles were regarded as being traceable to three primary laws:

- (1) the law of the generating cycle of raw materials, which is due to a non-economic cause;
- (2) the law of demand for raw materials, in consequence of which the generating cycle of products originates a derived cycle of prices for raw materials; and
- (3) the law of competitive price, according to which the prices of finished goods in an open market tend to correspond with the cost of production.

The present paper carries the inquiry a stage further. An analysis is made of the history of prices in Great Britain, for a century, and the results are considered with reference to their dependence upon generating agricultural cycles and with regard to their bearing upon the economic theory of cycles.

I

DATA AND METHOD

The data for the first part of the investigation are the Sauerbeck index numbers of general wholesale prices for the interval between the Napoleonic wars and the Great War. This record from 1818 to 1913, which is

a summary description of economic history during a century of unparalleled development between two world-wide catastrophes, supplies unique material for an inductive quest of economic regularities.

The method used in the inquiry is Fourier's Theorem as it has been developed for statistical purposes by Professor Schuster and Professor Turner.

The Savilian Professor of Astronomy at Oxford, Professor Turner, has said that "apart from the planetary motions periodicities in nature are seldom clearcut."¹ As we shall attempt to establish certain economic cycles and to trace their cause to periodicities in nature, the part of wisdom would seem to be to profit by the experience of natural scientists who have dealt with the problem of isolating natural periodicities.

It is well known that Fourier's celebrated theorem

$$y = A_0 + a_1 \cos kt + a_2 \cos 2kt + \dots \\ + b_1 \sin kt + b_2 \sin 2kt + \dots$$

if carried out to a sufficient number of terms will reproduce almost any type of graph. This equation may be expressed also in the form

$$y = A_0 + A_1 \sin (kt + e_1) + A_2 \sin (2kt + e_2) + \dots$$

When the parameters of this equation are determined from statistical data the question arises as to the significance of the several terms in the Fourier series. Do the successive terms in the sine series correspond to real periodicities in nature, or are they merely formal terms the summation of which will give the observed values of the original data? If, for example, a high value were obtained for one of the A -coefficients in the sine series, what warrant would there be for assuming that the particular sine term of which the given A was the

¹ H. H. Turner, *Tables for Facilitating the Use of Harmonic Analysis*, p. 44.

coefficient would be significant of a real recurring periodicity?

This problem was considered by Professor Schuster in his theory of the periodogram.¹ According to Professor Schuster, "the periodogram may be said to put the statistical material in a form in which it may be most readily discussed, but there may be always cases in which the interpretation is difficult. . . . I do not, of course, claim to have first introduced the application of Fourier's Theorem to the discovery of hidden periodicities. . . . The process is sufficiently obvious to have been frequently introduced, but it has generally been assumed that each maximum in the amplitude of a harmonic term corresponded to a true periodicity. What distinguishes the method which I am endeavouring to introduce from that of others, is the discussion of the natural variability of the Fourier coefficients according to the theory of probability, independently of any periodic cause which may have influenced the phenomenon."²

The first step in the Schuster method of isolating true periodicities by the method of the periodogram consists in arranging the data of the statistical series into groups of different lengths and then computing the values of the coefficients of the sine terms appropriate to the different groups. The required lengths and closeness of the groups are discussed³ by Professor Schuster, and he

¹ The fundamental memoirs of Professor Schuster are "On the Investigation of Hidden Periodicities with Application to a Supposed 26 Day Period of Meteorological Phenomena." *Terrestrial Magnetism*, for March, 1898; "The Periodogram of Magnetic Declination as Obtained from the Records of the Greenwich Observatory during the Years 1871-1895," *Cambridge Philosophical Society Transactions*, vol. 18, 1899; "On the Periodicity of Sunspots," *Philosophical Transactions of the Royal Society of London, A*, vol. 206, 1906.

² "On the Periodicities of Sunspots," *Philosophical Transactions, A*, vol. 206, pp. 71, 72.

³ See particularly "On the Periodicities of Sunspots," *Philosophical Transactions, A*, vol. 206, p. 71.

further shows how the probability of the reality of any assumed cycle is dependent upon the magnitude of the coefficient of its corresponding harmonic in the periodogram. In brief, the probability of the reality of an assumed cycle is shown to be dependent upon the relative size of A^2 where A is the coefficient of the sine term descriptive of the assumed cycle.

Professor Turner's method, which he has called the method of Fourier Sequence,¹ is based upon Professor Schuster's method of the periodogram. The device may be illustrated by the problem in connection with which the method of Fourier Sequence was developed. In 1913, when Professor Turner published his essays, a fairly good record of sunspots existed for a period of 156 years. His problem was to determine whether there was ground for believing that there were real periodicities in the sunspot data, and if so, to ascertain their approximate lengths. The same problem had been considered by Professor Schuster with the aid of the method of the periodogram, but, according to Professor Turner, the Schuster method was needlessly complex, involving an unnecessary amount of computation. An adequate solution was thought to be obtained if a Fourier series were computed for the whole series of data, and the several terms of the series were investigated more in detail according as the magnitudes and signs of the coefficients of the several terms indicated the possible presence of a real cycle. In order to carry out this idea, Professor Turner computed for the 156 years of sunspot data the harmonics for the periods of the following number of

¹ The fundamental memoirs of Professor Turner are "On the Harmonic Analysis of Wolf's Sun-spot Numbers, With Special Reference to Mr. Kimura's Paper," *Monthly Notices of the Royal Astronomical Society*, May, 1913; "On the Expression of Sun-spot Periodicity as a Fourier Sequence, and on the General Use of a Fourier Sequence in Similar Problems," *ibid.*, 1913 (Supplement); "Further Remarks on the Expression of Sun-spot Periodicity as a Fourier Sequence," *ibid.*, November, 1913.

years: 156, 156/2, 156/3 . . . 156/54. The principal advantage claimed by Professor Turner for the method of Fourier Sequence is this: The development of the Fourier Sequence is

- (1) *Necessary*. — "Since each term of the Fourier Sequence is independent of every other, it cannot be inferred from any other. Hence we must at least calculate all these terms."¹
- (2) *Sufficient*. — "If we desire to know to what extent any periodicity intermediate between two of those directly tabulated is represented in the observations . . . we are able to deduce this information from the sequence."²

II

AN ANALYSIS OF A CENTURY OF PRICES

As a preliminary step our investigation will follow the method of Professor Turner in the analysis of Sauerbeck's index numbers of general wholesale prices.

Sauerbeck's index numbers of general wholesale prices from 1818 to 1913 are recorded in Table I of the Appendix and are graphed in Figure 1. The graph shows quite clearly that the mean value of the items in the early part of the series is higher than the mean value during the latter part, and we are, therefore, confronted with the question as to what shall be done about the secular trend of the figures. Any hypothesis that might be made as to the type of curve to represent the secular trend would, to a degree, be an arbitrary hypothesis, and my decision has been to make no supposition as to the secular trend, but to proceed with the computation of the Fourier terms from the crude index numbers. In

¹ "On the Expression of Sun-spot Periodicity as a Fourier Sequence," *Monthly Notices of the Royal Astronomical Society*, 1913, p. 715.

² *Ibid.*, p. 715.

support of this decision these two considerations are offered:

1. It is known that each term of a Fourier sequence is independent of the other terms, and there is, therefore, a probability that when a Fourier series is fitted to the statistical data covering a considerable length of time, the early terms of the series will make an allowance for the secular trend which will be independent of the later terms.¹ Figures 1, 2, 3, 4 show the reasonableness of this assumption. An ample description of these graphs will be given later on.

2. The authority of Professor Schuster is against the early elimination of the secular trend before the Fourier terms are computed: "Very considerable labour has sometimes been spent in eliminating secular variations and other known periodicities before the hidden periodicities are searched for. We may reasonably ask the question, what object is thereby gained? It is one of the great advantages of Fourier's analysis that each of its terms is independent of the others; and if we wish to determine any particular coefficient it is unnecessary to begin by eliminating the others. The analysis itself performs that process in the best possible way, if the coefficients are obtained by arithmetical calculations. . . . The general rule may be given, that it is the best to eliminate as few variations as possible, and to carry out the elimination at as late a stage of the computation as possible."²

For these reasons we have computed the Fourier terms directly from the index numbers in the raw state. The results of the computation are given in Table II

¹ Cf. Schuster, "The Periodogram of Magnetic Declination," p. 113. "Table . . . clearly shows the effects of secular variation, and we must consider in how far it is necessary to take any notice of this variation. If our observations extended over an indefinite time, Fourier's analysis would itself perform all that is required, and each period would be totally independent of all others."

² "On the Investigation of Hidden Periodicities," p. 24. Cf. also p. 28.

of the Appendix. The headings of the table will be understood from an examination of Fourier's series when it is expressed in the following two forms:

$$(1) y = A_0 + a_1 \cos kt + a_2 \cos 2kt + \dots \\ + b_1 \sin kt + b_2 \sin 2kt + \dots$$

$$(2) y = A_0 + A_1 \sin (kt + e_1) + A_2 \sin (2kt + e_2) + \dots$$

The amplitudes of the terms in (2) — the A -coefficients — are obtained from the corresponding coefficients in (1) by means of the formula $A = \sqrt{a^2 + b^2}$. A_0 is equal to the mean value of the 96 index numbers. The lengths of the periods in the second column of Table II are obtained by dividing 96, which is the number of years of observations recorded in the Sauerbeck index numbers, by the consecutive integers that are given in the first column. The constant k in the formulae (1) and (2), which does not appear in Table II, is equal to $\frac{360^\circ}{96} = 3^\circ 45'$. The constants e in (2) do not occur in Table II, but their values may be obtained from the corresponding values of a and b in (1) by the relation $\tan e = \frac{a}{b}$.

We shall now consider the conclusions that may be drawn from the data of Table II and we shall begin with the last column which gives the values of A^2 . If we let the eye run down the last column, it will note that at four places the values of A^2 assume special importance — for the periods of 96 years, 48 years, 24 to 16 years, and 8.7 to 7.4 years. A moment ago when the question of eliminating the secular trend was under consideration, the decision was reached to permit the early terms of the Fourier series to provide for the secular trend rather than to adjust the raw figures of the observation according to a more or less arbitrary assumption as to the type

of curve which might be appropriate to represent the trend. It now seems reasonable to conclude that the large values of A^2 at 96 years and 48 years, and possibly those between 24 and 16 years, are caused by the general trend of the figures. Inasmuch as one of these covers the whole range of the observations and the other, one-half of the range, one would certainly not be justified in holding that they represent real recurrent cycles. Figures 1 and 2 depict these two Fourier constituents of the price curve. Figure 1 also shows the curve that is obtained by combining the mean of the Sauerbeck index numbers with the 96-year Fourier constituent. Likewise Figure 2 gives the compound curve made up of the mean of the Sauerbeck index numbers and the 96- and 48-year Fourier constituents.

With two of the four important values of A^2 in Table II accounted for, the possibility of real cycles in the 96-years record is limited to the remaining two epochs between 24 and 16 years and between 8.7 and 7.4 years. The mean of the limiting values of the latter period is $\frac{8.7+7.4}{2} = 8.0$ years, and the limits of the other period

are respectively twice and three times this mean value. The value of A^2 in Table II corresponding to a period of exactly 8 years is small, but if the computation had been confined to the interval 1857-1913 its value would have been 7.95.

Thus far the argument as to the existence of real periods has been based upon the size of A^2 which is the criterion used by Professor Schuster. An additional criterion has been offered by Professor Turner. In his fundamental memoir¹ he has pointed out that when a striking periodicity is present, there is a tendency for the

¹ H. H. Turner, "On the Expression of Sun-spot Periodicity as a Fourier Sequence," *Monthly Notices of the Royal Astronomical Society*, 1913, p. 716. Cf. also, pp. 722, 723.

signs of a and b to change between consecutive Fourier constituents. Table II shows that not only are the values of A^2 large for the period between 24 and 16 years, and for the period between 8.7 and 7.4 years, but that in both instances there is a change of sign in either a or b .

Considering that in a record of 96 years a possible cycle of about 16 years could occur six times and one of about 8 years could occur twelve times, this analysis of a century of prices seems to warrant the conclusion that there may be a real cycle of prices between 16 and 24 years in length, and that there is a large probability of the existence of a real cycle in the neighborhood of 8 years. As the argument proceeds we shall have strong additional reason for believing that the indicated eight-year cycle in the Sauerbeck index numbers of wholesale prices is a real cycle with an assignable cause. Certainly the Fourier analysis indicates that if there is a real cycle in the 96 years of the Sauerbeck observations, its most probable value is in the neighborhood of eight years.

In order to isolate and exhibit the cycles of approximately eight years the graphs of Figures 3, 4, 5 have been computed and drawn. Figure 3 shows the Fourier constituent of 19.2 years — which, according to Table II, is one of the most important constituents — and the compound curve that results from combining the mean of the Sauerbeck observations with the Fourier constituents of 96, 48, and 19.2 years. Figure 4 depicts the 16-year Fourier constituent and the compound curve made up of the mean value of the Sauerbeck numbers and the 96-, 48-, 19.2- and 16-year Fourier constituents. A review of Figures 1, 2, 3, 4 exemplifies how the addition of Fourier terms gives an increasingly accurate description of the general trend of the Sauerbeck num-

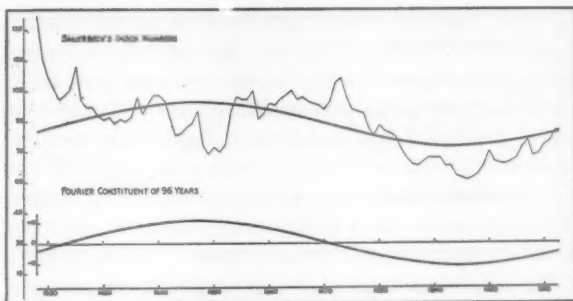


FIGURE 1. Sauerbeck's index numbers of general wholesale prices.
Equation to the upper smooth curve: $y = 88.6 + 11.2 \sin(\frac{3.60^\circ}{96}t + 342^\circ)$,
origin at 1818.

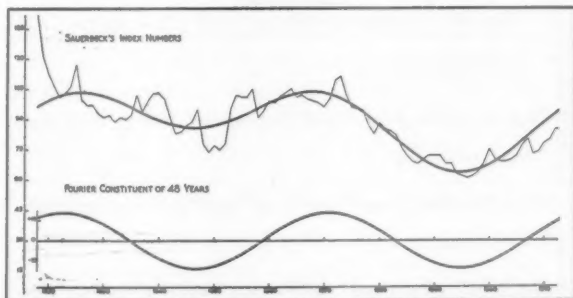


FIGURE 2. Sauerbeck's index numbers of general wholesale prices.
Equation to the upper smooth curve: $y = 88.6 + 11.2 \sin(\frac{3.60^\circ}{96}t + 342^\circ) +$
 $13.8 \sin(\frac{3.60^\circ}{48}t + 55^\circ)$, origin at 1818.

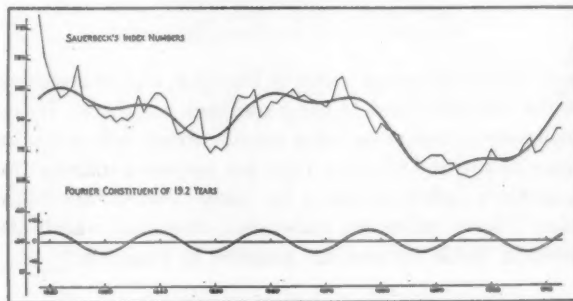


FIGURE 3. Sauerbeck's index numbers of general wholesale prices.
Equation to the upper smooth curve: $y = 88.6 + 11.2 \sin(\frac{3.60^\circ}{96}t + 342^\circ) +$
 $13.8 \sin(\frac{3.60^\circ}{48}t + 55^\circ) + 5.3 \sin(\frac{3.60^\circ}{19.2}t + 52^\circ)$, origin at 1818.

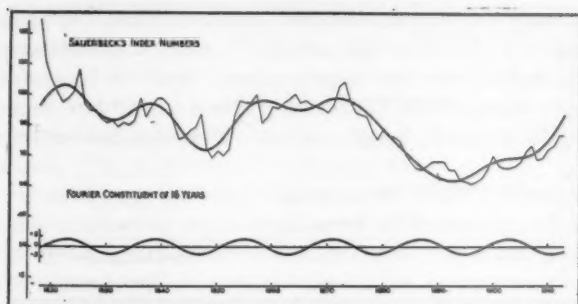


FIGURE 4. Sauerbeck's index numbers of general wholesale prices.
Equation to the upper smooth curve: $y = 88.6 + 11.2 \sin (\frac{2\pi}{16}t + 342^\circ) + 13.8 \sin (\frac{2\pi}{8}t + 55^\circ) + 5.3 \sin (\frac{2\pi}{4}t + 53^\circ) + 3.6 \sin (\frac{2\pi}{2}t + 343^\circ)$,
origin at 1818.

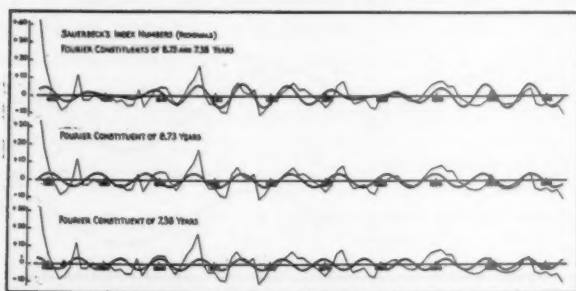


FIGURE 5. Residuals of Sauerbeck's index numbers of general wholesale prices.
Equation to the upper smooth curve: $y = 3.8 \sin (\frac{2\pi}{8.73}t + 0^\circ) + 3.1 \sin (\frac{2\pi}{7.38}t + 92^\circ)$, origin at 1818.
Middle smooth curve: $y = 3.8 \sin (\frac{2\pi}{8.73}t + 0^\circ)$.
Bottom smooth curve: $y = 3.1 \sin (\frac{2\pi}{7.38}t + 92^\circ)$.

bers. The compound curve in Figure 4, I have regarded as the general trend of the Sauerbeck numbers. If the ordinates of this compound curve corresponding to the years between 1818 and 1913 are subtracted from the Sauerbeck index numbers for those years, we obtain what I have called the Sauerbeck residuals, which are listed in Table III and are graphed in Figure 5.

Table II, as we have seen, indicates that there is a real cycle between 8.73 and 7.38 years in the Sauerbeck index numbers. In Figure 5, three smooth curves have been fitted to the Sauerbeck residuals, one of which is made up of the two cycles of 8.73 and 7.38 years respectively. This curve gives an excellent description of the residuals. In the remaining curves the cycles of 8.73 and 7.38 years have been fitted to the data separately. The curve of 8.73 years, as we should expect from the greater value of A^2 in Table II, gives a better description of the residuals than the curve of 7.38 years.

III

CROP CYCLES AS GENERATING CYCLES

No one familiar with the theory of prices and with their multitudinous causes of change would expect the record of general wholesale prices to show an exact mathematical precision in the working out of any one cause. If there were a predominant cause one would feel that, at best, the nature of its effect would be revealed only in the average of a fairly long record. One would be prepared for a marked deviation from the average in any particular instance. On the other hand, if in the average of a fairly long record there should be evidence of a persistent cycle, no one acquainted with the statistical theory of cycles would fail to suspect the presence of a predominant periodic cause.

The analysis of a century of prices has revealed the existence of a cycle in wholesale prices of about eight years in length. What is its cause?

In the paper¹ to which reference has already been made, I have shown that in the United States the yield per acre of the leading crops between 1882 and 1918

¹ "Generating Cycles of Products and Prices," *Quarterly Journal of Economics*, February, 1921.

passed through cycles of about eight years with maxima at about 1882, 1890, 1898, 1906, and 1914. These eight-year cycles in the yield of the crops generated eight-year cycles in the prices of organic raw materials of manufactures which, according to the law of competitive price, were followed by corresponding cycles in the prices of manufactured commodities. In two earlier articles published in the *Journal of the Royal Statistical Society* the following were among the conclusions that were reached:¹

- (1) The yield per acre of representative crops in the United Kingdom since 1884 — when the figures for the yield per acre of the crops began to be collected officially — passed through eight-year cycles which were synchronous with the cycles of eight years in the yield of the American crops;
- (2) The yield per acre of representative crops in France was closely correlated with the yield in the United Kingdom and passed through eight-year cycles which were synchronous with the crop cycles in the United Kingdom and in the United States.

The synchronism of the crop cycles in these three countries and the demonstrated existence of derived eight-year cycles of agricultural prices in the United States, which according to the law of competitive price induced corresponding cycles in the prices of manufactured commodities, would seem to indicate that the clue to the observed eight-year cycle in Sauerbeck's index numbers of general prices might be found in the eight-year cycles of the crops.

Holding fast to this clue we shall present evidence to

¹ "Crop Cycles in the United Kingdom and in the United States," May, 1919
"Crop Cycles in the United Kingdom and in France," May, 1920.

show that throughout the interval under investigation, 1818 to 1913, and for a still longer period, the British crops passed through cycles of approximately eight years in length.

The first bit of evidence has already been adduced. The yield per acre of representative crops in the United Kingdom — wheat, oats, and barley — passed through cycles of eight years with maxima at about 1882, 1890, 1898, 1906, 1914, and these cycles were synchronous with those of France and the United States. (The graph is given in Figure 6.)

In presenting the next remarkable piece of evidence I make use of a thoughtful, long neglected paper¹ on "A Comparison of the Fluctuations in the Price of Wheat and in the Cotton and Silk Imports into Great Britain," by the late J. H. Poynting, at one time Professor of Physics in Birmingham.² Having in mind, doubtless, the essays of Stanley Jevons, the author expressed cautiously the opinion that "the attempt to prove the sunspot origin of variations of the harvests and crops has probably led us somewhat away from the proper line of inquiry. This, it seems to me, should begin with such a manipulation of the statistics as to show the true fluctuations whatever they may be, with the effects of wars, increase of commerce, etc., as far as possible eliminated."³ Accordingly Professor Poynting set about devising a method to reveal the essential fluctuations in the price of wheat in England from 1760 to 1875. Here is his description of the method:

In order to determine the fluctuations we require to know not only the actual price, but whether that price is above or below the

¹ Journal of the Royal Statistical Society, March, 1884.

² "Poynting belonged to the rare type of men who are more critical of their own work than of that produced by others. The number of his papers is therefore comparatively small, but each of them marks some definite and generally important step." Schuster and Shipley, *Britain's Heritage of Science*, p. 161.

³ Journal of the Royal Statistical Society, March, 1884, p. 35.

average for that time. It becomes necessary then to average the prices in some way so as to obtain a standard for each year, and we can then determine whether the price for any particular year is high or low according as it is above or below that standard. I have found it sufficient to average for ten years at a time, that is, I have taken as the standard for each year the average of the ten years of which that year is the fifth. If a curve be drawn whose ordinates represent these standard prices, it will be seen at once that all the larger irregularities are nearly smoothed down. . . .

It would now be possible to represent the rises and falls in price by comparing the price for each year with the standard for that year. But there are so many irregularities of short duration, say two or three years, that it is more convenient to take, instead of the price for each year, the average for a short period, and for this purpose I adopt four years. The price for any one year then to be compared with the standard, is the average for the four years of which that year is the second.

Were there only very small variations in the standard, it would be sufficient to take the difference between the ten-yearly and the four-yearly averages. But the standard varies very considerably. . . . The higher the standard, the greater are the differences between it and the four-yearly average. To obtain results which may be compared with each other at different times, this effect of change of standard must be eliminated. This may be done by finding what percentage the four-yearly is of the ten-yearly average.¹

The numerical results of the application of this method to the prices of wheat in England from 1760 to 1875 are given in Table IV and are graphed in Figure 6. After Professor Poynting had made his computations following the method which has just been described and had written his paper, he had the good fortune to have it read, before its publication, by Professor George Gabriel Stokes² than whom there was probably no one

¹ Journal of the Royal Statistical Society, March, 1884, pp. 36, 37.

² "The golden age of mathematics and physics at Cambridge was coincident with the scientific activity of George Gabriel Stokes (1819-1903) which began in 1842, and extended, with but slightly diminished vigour, to the end of the last century. Stokes' position as an investigator is among the greatest, but his influence cannot be measured merely by the record of his published work. He united two generations of scientific workers by the love and veneration centered in their gratitude for the assistance and encouragement which, with kindly and genuine interest, he showered upon them out of the wealth of his knowledge and experience. Even those who intellectually were his equals owed much to his sound and impartial judgment. Turning away from the grave which

better equipped to pass judgment upon the mathematical implications of the Poynting method of curve smoothing. Professor Poynting's conclusions from the observations of his eminent critic are given in these summary sentences:

Thus the effect of the averaging process is practically to destroy all harmonics below five years, to save over half the amplitude at six years, a greater amount up to eight years, when about five-sixths is saved, and beyond that a continually decreasing amount, though at fifteen years still nearly one-half is saved. . . . Thus while for eight, nine, and ten-year periods the process saves about 80 per cent of the coefficient, it falls to 60 per cent on the one side for six years, and to 45 per cent on the other for sixteen years.¹

With this large proportion of the amplitudes of possible cycles between six and sixteen years in length preserved by the process of curve smoothing, one would suppose that the author would have been eager to know whether there was any regularity in his data. But Professor Poynting's caution led him to stop at the most interesting phase of his investigation. The Chairman of the meeting of the Statistical Society at which the paper was read, Sir Rawson W. Rawson, was at pains specifically to point out that "Professor Poynting did not suggest that there were periods, or cycles of prices or of anything similar. He had merely adopted a ten year's period for forming an average, in order to establish a curve for the examination and comparison of periodicities of every kind, and did not suggest that there were periods, or cycles of prices, or anything else."²

We now ask the definite question: Is there evidence that cycles in the yield of wheat recurred in the interval

was closed over his life-long friend, Kelvin was heard to say: 'Stokes is gone, and I shall never return to Cambridge.' " Schuster and Shipley, *Britain's Heritage of Science*, p. 123.

¹ *Journal of the Royal Statistical Society*, March, 1884, pp. 46, 47.

² *Ibid.*, p. 68.

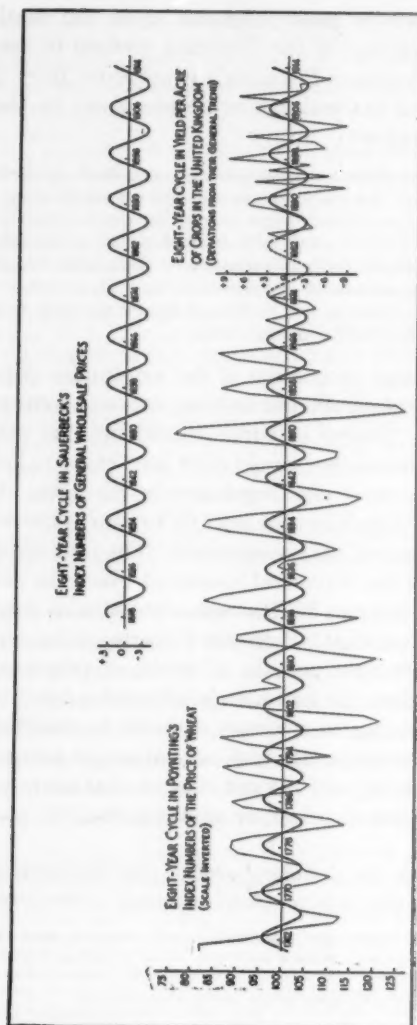


FIGURE 6. Generating cycles reflected in a century of prices.
 Upper curve: $y = 3.5 \sin (\frac{1}{8} \pi x) + 61^{\circ}$, origin at 1818.
 Lower curves: Poynting's index numbers, $y = 100.2 + 4.4 \sin (\frac{1}{8} \pi x) + 248^{\circ}$, origin at 1769;
 Yield per acre of the crops, $y = 3.0 \sin (\frac{1}{8} \pi x) + 142^{\circ}$, origin at 1884.

from 1760 to 1875? By the application of the method of the periodogram we have found that in the yield per acre of the leading crops in the United States, in the United Kingdom, and in France, there are cycles of approximately eight years, and these eight-year cycles in the three countries are synchronous. We have also found that the prices of the crops in the United States are closely correlated with the yield per acre, the coefficients of correlation ¹ ranging from $r = -.2$ to $r = -.9$ and averaging $r = -.7$.

It would, therefore, seem legitimate to assume that if there were cycles in the price of wheat in England from 1760 to 1875 during a large part of which time the importation of grain was restricted in consequence either of wars or of corn laws, then there were cycles of like period and opposite phase in the yield per acre of the crops.

If we compute a sine curve with a period of eight years for the Poynting smoothed index numbers of the price of wheat, which are given in Table IV, we find (Figure 6) that

- (1) The curve fits the observations surprisingly well throughout the 116 years of the record except for the interval of the wars of the French Revolution and the Napoleonic wars;
- (2) The eight-year cycle in the price of wheat, in consequence of the law of demand, reveals an eight-year cycle in the yield per acre of wheat continuous with the eight-year cycle already established for the crops of the United Kingdom ² from 1884 to 1914. The continuity of the cycles is shown in Figure 6.
- (3) The cycles in the yield per acre of the crops

¹ "Generating Cycles of Products and Prices," *Quarterly Journal of Economics*, February, 1921, pp. 223, 226.

² The data and original graph for the period 1884 to 1914 may be found in the *Journal of the Royal Statistical Society*, May, 1919, pp. 384, 387.

from 1760 to 1913 generated derived cycles in the prices of organic raw materials of production which, in consequence of the law of competitive price, must have tended to induce eight-year cycles in the general prices of commodities;

- (4) The analysis of the Sauerbeck index numbers shows that, as a matter of fact, during the century for which the Sauerbeck numbers are given, 1818-1913, general prices did pass through cycles of approximately eight years.

In Figure 6 an eight-year cycle is fitted to the residuals of the Sauerbeck index numbers. We found in our analysis of the Sauerbeck residuals that the equation to the indicated cycle of 8.73 years was

$$y = 3.8 \sin \left(\frac{360^\circ}{8.73} t + 9^\circ \right),$$

and that the equation to the indicated cycle of 7.38

years was $y = 3.1 \sin \left(\frac{360^\circ}{7.38} t + 92^\circ \right)$. The eight-year

cycle which is representative of the Sauerbeck residuals in Figure 6 was constructed from these two equations in the following way: Its period of eight years is the mean

of the periods of these two cycles $\frac{8.73+7.38}{2} = 8.05$;

the amplitude of the eight-year cycle is the mean of the

amplitudes of these two cycles, $\frac{3.8+3.1}{2} = 3.45$; and

the phase of the eight-year cycle is the mean of the

phases of the two cycles $\frac{9^\circ+92^\circ}{2} = 50^\circ 30'$. It will be

seen from Figure 6 that the eight-year cycles in the cen-

tury of Sauerbeck's index numbers were approximately synchronous with the corresponding cycles in the indicated yield per acre of the British crops. The eight-year cycle in the crops is proved to have persisted throughout nearly the whole period of 159 years from 1760 to 1918 (the investigation of the American crops was carried through 1918) or for an interval of twenty cycles of eight years in length. This generating eight-year cycle in the crops induced derived cycles of prices which are reflected and verified in the century of Sauerbeck index numbers of general wholesale prices.

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APPENDIX

TABLE I. — SAUERBECK'S INDEX NUMBERS OF GENERAL
WHOLESALE PRICES

Year	Index Number	Year	Index Number	Year	Index Number	Year	Index Number
1818	142	1842	91	1866	102	1890	72
1819	121	1843	83	1867	100	1891	72
1820	112	1844	84	1868	99	1892	68
1821	106	1845	87	1869	98	1893	68
1822	101	1846	89	1870	96	1894	63
1823	103	1847	95	1871	100	1895	62
1824	106	1848	78	1872	109	1896	61
1825	117	1849	74	1873	111	1897	62
1826	100	1850	77	1874	102	1898	64
1827	97	1851	75	1875	96	1899	68
1828	97	1852	78	1876	95	1900	75
1829	93	1853	95	1877	94	1901	70
1830	91	1854	102	1878	87	1902	69
1831	92	1855	101	1879	83	1903	69
1832	89	1856	101	1880	88	1904	70
1833	91	1857	105	1881	85	1905	72
1834	90	1858	91	1882	84	1906	77
1835	92	1859	94	1883	82	1907	80
1836	102	1860	99	1884	76	1908	73
1837	94	1861	98	1885	72	1909	74
1838	99	1862	101	1886	69	1910	78
1839	103	1863	103	1887	68	1911	80
1840	103	1864	105	1888	70	1912	85
1841	100	1865	101	1889	72	1913	85

TABLE II. — RESULTS OF FOURIER ANALYSIS OF SAUERBECK'S INDEX
NUMBERS OF GENERAL WHOLESALE PRICES. 1818-1913

Di- visor	Period in Years	a	b	A ²	Di- visor	Period in Years	a	b	A ²
1	96.0	- 3.46	+10.60	124.42	13	7.4	+3.12	- .11	9.74
2	48.0	+11.27	+ 7.96	190.40	14	6.9	+2.12	+1.77	7.62
3	32.0	+ 1.08	+ .76	1.73	15	6.4	+ .61	+ .17	.41
4	24.0	+ 2.95	+ .70	9.17	16	6.0	+1.67	+ .29	2.86
5	19.2	+ 4.18	+ 3.28	28.23	17	5.6	+ .88	+ .72	1.30
6	16.0	- 1.08	+ 3.46	13.13	18	5.3	+ .59	+2.03	4.48
7	13.7	+ .78	+ .76	1.19	19	5.0	+ .04	+ .66	.44
8	12.0	+ 1.85	+ .73	3.95	20	4.8	+ .29	+ .75	.65
9	10.7	+ 1.18	- .02	1.40	21	4.6	+1.38	+ .48	2.14
10	9.6	+ 2.00	- .92	4.86	22	4.4	+ .03	+1.64	2.68
11	8.7	+ .61	+ 3.76	14.52	23	4.2	+ .80	+ .63	1.03
12	8.0	+ 1.36	- .51	2.12	24	4.0	+ .30	- .10	.10

TABLE III. — RESIDUALS OF SAUERBECK'S INDEX NUMBERS
OF GENERAL WHOLESALE PRICES

Year	Residual	Year	Residual	Year	Residual	Year	Residual
1818	+42.4	1842	- 1.2	1866	+ 3.9	1890	+ 7.7
1819	+17.7	1843	- 5.7	1867	+ 1.2	1891	+ 8.5
1820	+ 5.5	1844	- 0.9	1868	- 1.0	1892	+ 5.2
1821	- 2.6	1845	+ 5.3	1869	- 3.2	1893	+ 5.2
1822	- 8.4	1846	+ 9.7	1870	- 6.6	1894	- 0.5
1823	- 6.3	1847	+17.0	1871	- 2.8	1895	- 2.4
1824	- 1.7	1848	+ 0.2	1872	+ 5.9	1896	- 4.7
1825	+11.6	1849	- 4.8	1873	+ 8.2	1897	- 5.3
1826	- 2.4	1850	- 4.1	1874	+ 0.3	1898	- 5.0
1827	- 2.4	1851	- 9.0	1875	- 4.3	1899	- 2.5
1828	+ 0.4	1852	- 9.5	1876	- 3.3	1900	+ 3.2
1829	- 1.3	1853	+ 3.7	1877	- 1.9	1901	- 2.9
1830	- 1.8	1854	+ 7.3	1878	- 6.3	1902	- 4.5
1831	- 0.4	1855	+ 2.5	1879	- 7.5	1903	- 4.7
1832	- 3.6	1856	+ 1.0	1880	+ 0.5	1904	- 4.1
1833	- 2.8	1857	+ 3.6	1881	+ 0.3	1905	- 2.4
1834	- 5.6	1858	-10.9	1882	+ 2.0	1906	+ 2.1
1835	- 5.3	1859	- 7.9	1883	+ 2.7	1907	+ 4.1
1836	+ 3.0	1860	- 2.1	1884	- 0.7	1908	- 4.4
1837	- 6.2	1861	- 2.2	1885	- 2.4	1909	- 5.8
1838	- 1.5	1862	+ 1.8	1886	- 2.9	1910	- 4.8
1839	+ 3.2	1863	+ 4.8	1887	- 1.7	1911	- 6.5
1840	+ 4.9	1864	+ 7.2	1888	+ 2.3	1912	- 5.7
1841	+ 4.5	1865	+ 3.3	1889	+ 6.1	1913	-10.2

TABLE IV.—POYNTING INDEX NUMBERS OF THE PRICE OF
WHEAT PER QUARTER^u IN ENGLAND FROM 1760 TO 1875.
M₁₀ = TEN-YEAR AVERAGE OF THE ABSOLUTE PRICES OF WHEAT
M₄ = FOUR-YEAR AVERAGE OF THE ABSOLUTE PRICES OF WHEAT

Year	Poynting Index M ₄ /M ₁₀	Year	Poynting Index M ₄ /M ₁₀	Year	Poynting Index M ₄ /M ₁₀	Year	Poynting Index M ₄ /M ₁₀
1760	82.3	1789	106.0	1818	116.6	1847	111.6
1761	82.2	1790	98.5	1819	103.5	1848	103.6
1762	92.1	1791	90.0	1820	87.9	1849	84.2
1763	98.1	1792	87.1	1821	82.6	1850	75.9
1764	101.8	1793	98.1	1822	86.2	1851	78.0
1765	111.6	1794	110.7	1823	95.0	1852	94.8
1766	112.9	1795	102.3	1824	103.3	1853	112.9
1767	104.8	1796	91.9	1825	105.0	1854	126.4
1768	101.4	1797	86.4	1826	101.7	1855	124.6
1769	94.3	1798	97.0	1827	98.6	1856	108.5
1770	93.3	1799	117.4	1828	100.9	1857	92.2
1771	100.2	1800	121.1	1829	107.0	1858	86.8
1772	107.7	1801	117.8	1830	111.7	1859	91.4
1773	110.7	1802	98.4	1831	107.8	1860	103.0
1774	105.3	1803	85.7	1832	100.2	1861	107.7
1775	103.8	1804	85.7	1833	87.6	1862	99.2
1776	98.3	1805	91.3	1834	82.3	1863	88.8
1777	90.5	1806	99.7	1835	83.3	1864	85.3
1778	88.9	1807	95.4	1836	91.9	1865	96.2
1779	89.2	1808	97.6	1837	105.8	1866	107.2
1780	93.9	1809	101.7	1838	114.2	1867	110.0
1781	104.8	1810	116.8	1839	117.0	1868	105.8
1782	113.6	1811	120.3	1840	111.4	1869	99.3
1783	111.0	1812	108.8	1841	101.5	1870	95.5
1784	101.7	1813	100.3	1842	92.9	1871	101.0
1785	91.6	1814	89.8	1843	89.4	1872	106.5
1786	89.1	1815	90.0	1844	92.4	1873	104.7
1787	95.3	1816	97.8	1845	106.1	1874	96.4
1788	104.2	1817	111.3	1846	111.1	1875	99.8

FUNDAMENTAL PROBLEMS OF FEDERAL INCOME TAXATION

SUMMARY

The problem: what is the sound and enduring solution of the tax problem? I. The surtaxes. (1) The surtaxes excessive. Their declining yield, 529. — (2) Tax-free securities, 530. — (3) Can the leaks be stopped, 532. — (4) Tax morality, 536. — (5) Theory of surtaxes, 537. — (6) The scientific solution, 539. — The immediate solution, 540. — II. Income taxes on corporations and business. (8) The income tax as a producer's or business tax, 541. — (9) Relation between personal and business income taxes, 542. — (10) The proposed corporation surtax, 544. — III. Basis of the Business Tax, 548. — (11) Shifting, 548. — (12) Simplicity versus equity, 551.

THE strain of war and reconstruction has severely tested the income tax, and has brought into high relief both its virtues and its defects. It has proved elastic and marvelously productive. At the outbreak of the World War (in the fiscal year 1914) the income tax, personal and corporate, was producing about \$70,000,000 a year, less than 10 per cent of the ordinary receipts; and at the close of the fiscal year 1917 its yield had been increased, by easy stages, to \$387,382,343,¹ or nearly one-third of the ordinary receipts. Then with our entrance into the war, it showed its real possibilities. The collections of income and profits taxes in the fiscal year 1918 ran to \$2,839,027,938 (68 per cent of the ordinary receipts), and two years later to \$3,956,936,003. In essentials the tax responded superbly, when brought to the test. It was paid, during the war, without wholesale remissions or postponements, without causing acute distress and without violent complaint.

¹ Including the munitions manufacturers' tax and excess-profits taxes amounting to \$37,176.

With the cessation of war and the appearance of industrial depression, however, the situation has changed. In order to prevent the heavy rates from actually bankrupting taxpayers, a great number of complicated devices have been introduced, so that the statute is understandable only by experts, and the making of returns (troublesome to everyone) requires in the case of large business concerns laborious readaptation of accounts and usually the employment of expert aid. These complexities have in turn swamped the administrative machine, and the burden of the tax has been aggravated by uncertainty arising from delay in the examination and audit of returns. "The taxpayer is never through." He never knows when he may be visited with a large demand for back taxes. These and other factors have greatly stimulated avoidance, not to say, evasion of the tax. Revenues have been falling off, particularly the collections from richer taxpayers. It is estimated, for example, that taxpayers subject to the personal tax, with incomes over \$100,000, who reported net income of \$1,606,516,153 for 1917, returned approximately only \$600,000,000 for 1920. And the shrinkage in 1921 is likely to be even greater.

Plainly, there is "something the matter with the income tax." About the necessity of thoroly revising the income tax law at this session of Congress there is general agreement. But what are the deeper defects, to what extent and in what way can they be corrected? To what extent is it hopeless to look for a real remedy? And finally, are the incurable defects so grave that we should seek a substitute more promising — or less repulsive?

To questions of this type the following discussion is addressed. It has in view the very practical end of contributing, if possible, to a sound and enduring solu-

tion of the tax problem which now confronts Congress. No attempt has been made to consider minor questions. It need hardly be said that the views and opinions expressed are purely personal.

I

THE SURTAXES

1. *Excessive surtax rates.* The key to tax revision — and at once the simplest and most difficult tax problem before Congress — is the proper fixation of the upper surtax rates. It is charged that those rates are excessive, that they practically force wealthier taxpayers to avoid or evade the tax, that their yield is shrinking rapidly, and that the current of free investment funds has been diverted from railway and industrial bonds to tax-free securities, with consequent repression of private enterprise and a corresponding fillip to municipal and state enterprise.

The last charge impresses the writer as exaggerated; but the remainder seem amply supported by the evidence. The revenue agents and other tax officials who examine the accounts of wealthier taxpayers, the bankers and lawyers who advise them, the accountants and tax consultants who prepare their returns for them, all agree — with substantial unanimity so far as I have been able to learn — that in large measure the wealthier taxpayers are in one way or another avoiding the upper surtaxes.

Income tax statistics confirm the charges, altho they are hardly complete enough to *prove* them. The principal figures are grouped in the tabular statements below. Between 1916 (when rates were low) and 1918 when the war rates were in full effect, the number of returns and the aggregate amount of net income in-

creased greatly.¹ But the income of the very rich (as illustrated by incomes of more than \$300,000) reported for purposes of taxation, fell off in a way which can hardly be otherwise explained than as a result of avoidance through the devices described below. It has been asserted that the actual incomes of the rich, particularly dividends, decreased in 1918. But this assertion, which may be true in minor part, does not explain the shrinkage of interest income among the very rich, nor the rapidity of the decline in their dividend income. Dividends may have been slightly smaller in 1918 than in 1917, but not 46 per cent smaller (as among the very rich), except as a result of transferring investments into tax-free securities, splitting up fortunes by gifts, incorporating personal holdings of property, and in general utilizing the means by which taxable income may be greatly reduced below actual income.

2. *Tax-free securities.* There is no reason to believe that the shrinkage in the yield of the upper surtaxes is ascribable principally to the baleful influence of the tax-free bonds. Whilst wealthy men have unquestionably transferred large sums from taxable investments to this tax-exempt field, the weight of the testimony is to the effect that the other factors and devices noted hereafter are in the aggregate responsible for more "avoidance" than investment in tax-free bonds. And it is not at all necessary that there shall be outstanding enough tax-free securities to absorb all of the transferable wealth of the very rich, in order that the tax-free security should do its deadly work. It makes very little difference whether there are eight or eighteen billions of "tax-exempts" outstanding, altho it is known that the aggre-

¹ Partly and perhaps chiefly due to a reduction of the personal exemptions between 1916 and 1917. The increase between 1917 and 1918, however, is not due to changes in the law; and it is practically certain that the actual aggregate net income (as distinguished from that reported for income taxation) did increase between 1916 and 1917.

NET INCOME AND CERTAIN CLASSES THEREOF REPORTED BY
 "ALL CLASSES" AND BY PERSONS WITH INCOMES
 OVER \$300,000

Year	Number of returns		Net income (in millions)		Dividends, interest and investment income (in millions)	
	All classes	Incomes over \$300,000	All classes	Income over \$30,000	All classes	Incomes over \$300,000
1916	437,036	1296	\$ 6,299	\$993	\$3,217	\$707
1917	3,472,890	1015	13,652	731	3,785	616
1918	4,425,114	627	15,925	401	3,872	344

Year	Dividends (in millions)		Interest and investment income (in millions)	
	All classes	Incomes over \$300,000	All classes	Incomes over \$300,000
1916	\$2,136	\$541	\$1,081 ¹	\$166 ¹
1917	2,849	505	937	111
1918	2,469	269	1,403	75

gate exceeds the lower figure. What is certain is that the quantity is ample to accommodate all the investments of the very rich who cannot reduce their surtaxes by some of the other devices available.

However, statistics and extended argument on this point seem to the writer superfluous. The essential fact is that tax-free bonds of the best class can be purchased in large volume at a price to yield 5 per cent a year, or more, and that a taxpayer subject to the maximum 73 per cent rate would have to secure from an industrial security or other taxable property more than 18 per cent to make the taxable investment as profitable as the taxless investment. In Wisconsin, where the maximum state income tax now exceeds 13 per cent, a taxpayer

¹ Contains certain profits and business income of fiduciaries not classified under "interest and investment income" for 1917 and 1918. The "interest and investment income" for 1916 should probably not exceed \$1,000,000,000 for "all classes" and \$140,000,000 for "incomes over \$300,000."

subject to the highest state and federal rates would have to receive 36 per cent from a taxable investment to make it as productive as a 5 per cent tax-exempt bond. Such a possibility alone is enough to destroy in the long run the potency of a 65 per cent surtax. While wealthy investors can make from 5 to 6 per cent on their money with the best security and with little or no liability to taxation, it seems idle to suppose that they will voluntarily embark in investments ordinarily accompanied by more risk, which will yield after payment of the tax much less than 5 per cent.

3. *Can the leaks be stopped?* Is it practicable so to amend the law that wealthier taxpayers will be compelled to pay the surtaxes imposed by law? As a practical matter, it seems plain that a negative answer must be given.

(a) Take first the haven of refuge, the outstanding state and municipal bonds. For the far future nothing is more important than the closing of this refuge. But it will require an amendment to the Federal Constitution, the ratification of which will consume considerable time; and it would be neither just nor politically possible to make the amendment apply to the now outstanding state and municipal bonds. In short, this avenue of avoidance must remain open for ten or fifteen years at least.

Theoretically, this evil could be mitigated at once, by applying the surtax rates to the entire income including tax-free interest and then deducting a proportion of the tax equal to the proportion of the entire income which is so exempt (as has been repeatedly recommended by the Treasury Department in the past). An even simpler but more drastic remedy would be to construe the tax-free income as exempt from the lower brackets of the surtax — not from the top brackets as

at present. But these proposals have been repeatedly rejected by the two Congressional committees in charge of tax legislation. They regard them as complex and of doubtful constitutionality, and they probably have little real chance of adoption.

(b) Many rich men escape surtaxes by incorporating their property, the holding corporation receiving the income and distributing to the owner only such part of the income as the latter desires to spend. The rate of the corporation income tax is only 10 per cent. Where the yield upon the investment does not exceed 8 per cent, there is no excess-profits tax to pay.

The federal income tax has contained since 1916 a rather harsh provision aimed at taxpayers who avail themselves of the corporate form of organization in order to avoid surtaxes; but this provision — now found in Section 220 of the Revenue Act of 1918 — is practically a dead letter, and has been so from its inception. It requires (probably) the government to prove an intent to evade. Some idea of the character of this problem may be gathered from the fact that the worst cases of this kind which have come to my attention — i. e., cases where the largest amounts of surtax were avoided — are cases in which the corporation was formed before the adoption of the 16th Amendment. The one-man or "personal" corporation which serves as the means of avoidance under discussion is innocent enough in itself and is an obviously desirable form of business organization for certain purposes. Congress is not likely to outlaw it.

(c) To an even greater extent rich men have recently divided their property by gift, conveying it usually to members of the family and so dividing the former income into several parts. Practically the same result (for present purposes) is reached in a number of south-

ern and western states by the community-property laws which bring about a division of the ordinary family income between husband and wife.

These are major evils which, theoretically, could be remedied rather easily. Gifts could be made subject to the income or estate tax; or the difference between the original cost and the value of the gift when transferred to the donee might possibly be taxed either to donor or donee. (If neither is done the gift should certainly be valued in the hands of the donee on the basis of its original cost to the donee, for the purpose of computing profit or loss in case of subsequent sale by the donee.) And the community-property problem could be solved, along with a number of minor evils, by making family income the basis of the tax, as is done in Wisconsin. Some action along these lines will possibly be taken. It is sorely needed. But it would be rash to conclude that all these holes will be effectively stopped.

(d) Much income has been wiped out by the voluntary taking (through sale) of losses on securities, the taxpayer holding assets which have appreciated and selling those which have depreciated in value since their acquisition. Further, a number of wealthy men have deliberately placed large sums of money in promising but unproductive investments, the yield from which will be realized at some future date when they hope that tax rates will be lower.

The latter device is probably not an important source of leakage, and I see no reason why an attempt to block it should be made. The former raises the whole question of the expediency of taxing gains derived or recognizing loss sustained from the sale of capital assets. Unfortunately, the two go together. We can disallow deduction for the losses, if we are willing to exempt the gains; but it is very unlikely that Congress will go back to the

old rule of taxing the gains and ignoring the losses, or of allowing the losses only to the extent of the corresponding gains. In the opinion of the writer capital gains and losses should be recognized for purposes of the normal tax, and excluded for purposes of the surtax. This is tantamount to a substantial limitation of the tax on capital gains, a solution of the problem which has been urged by many able students of federal taxation.

(e) There can be little doubt that both among corporations and other taxpayers, the extreme war rates of the excess-profits and income taxes have been responsible for much extravagant and doubtful expenditure. A partnership whose members were subject "at the top" to, say, a 65 per cent tax, could spend money for advertising or in wage bonuses at a net cost to the partnership of only 35 cents on the dollar. And among taxpayers not engaged in business, the higher surtaxes have in some cases stimulated extravagant personal expenditures, altho these expenditures could not be treated as "deductions."

Here again, a limit could be placed on abnormal expenditures for advertising, the taxpayer being required to charge the excess over the ordinary annual expenditure to capital account. And deductions for wage bonuses could be denied, as under the earlier income tax laws. But the one remedy is difficult and the other unwise; and no remedy can prevent excessive rates from discouraging saving.

Surveying all these leaks and the proposed methods of stopping them, it is reasonably certain that they cannot all be adopted. Several are of doubtful constitutionality and one or two savor of legislative desperation. "Hard cases make bad laws." Restoration to health is not to be found in the desperate remedies that kill or cure. It is to be found in a return to bearable and enforceable

rates. Considering the morale of the taxpayer, as it is now and as it can be made in the next few years, the volume of tax-free securities outstanding, the weakness of the administrative machine, and the years that will be required to perfect it, the simple truth is that we are overburdening the income tax. Nothing is more common in the history of taxation than the demoralization of what has been a good tax, as taxes go, by increasing its rates until the breaking point is reached.

4. *Tax morality.* It should never be forgotten that the income tax rests for its success primarily upon the honesty of the taxpayer. If taxpayers generally desire to destroy or falsify records, it is in my opinion practically impossible to prevent it. The morale of the taxpayer may be depended upon so long as the rates do not "reach his price." But when the tax takes more than one-half of the income the honesty of the taxpayer beyond doubt begins to crumble. In my opinion, except in time of war or emergency, it begins to crumble when it takes more than one-third of the income. All other aspects of the question are more or less insignificant compared to this. Extreme rates disintegrate the very foundation of the tax. It is well to remember that the favorable opinion of the income tax which has been created in the last generation or two rests for the most part upon experience with income taxes which did not exceed 6 per cent. When the Wisconsin income tax with a maximum rate of 6 per cent was adopted in 1911, it was regarded as an experimental and in many respects as an extreme tax. The world has had no experience over any considerable period of time with national income taxes carrying rates in excess of 12 or 15 per cent. It must be remembered, also, that the failure of the property tax in its application to securities and like intangibles was for years ascribable to the fact that such a

tax, if imposed, would take away 30 or 40 per cent of the income derived from the security. That explanation was, I believe, correct. American taxpayers in times of peace will not pay taxes of more than 25 or 30 per cent unless they are forced to do so — and in the case of income taxation, there is no successful way of compelling them.

5. *Theory of surtaxes.* The evil of the upper surtaxes appears particularly in their effect upon savings and investment. They are extreme when applied to income devoted to personal expenditures; they are next to impossible when applied to the gains which frequently result from a mere change of investment or to the undistributed profit of business concerns which embodies itself in increased inventories and extension of plant. The whole history of the war surtaxes proves, in the most practical and concrete way, the truth of two fundamental scientific principles with which economists have long been familiar. First of all, the income tax is essentially a different thing as it applies, respectively, to the consumer and to the producer. The surtaxes represent par excellence the personal or consumer's income tax. This point is discussed below. The other scientific principle, usually expressed in the statement that the income tax should not apply to savings, has been made familiar by Mill,¹ and in more elaborate form by Irving Fisher.²

As a matter of law and words — the meaning of the word "income" — both authorities are in my opinion wrong; and this question for the people of the United States has now been settled by the recent decision of the Supreme Court in the case of *Merchants Loan and Trust Company v. Smietanka*. Moreover, as shown

¹ Political Economy, Bk. V, chap. ii, paragraph 4.

² Nature of Capital and Income, chap. xiv, paragraphs 10-12, and Appendix to chap. xiv, paragraphs 2, 3.

hereafter, their conclusions do not hold for the income tax as a business or producers tax; and even for the personal income tax they are too baldly stated. Their arguments justify partial rather than complete exemption of savings. As explained by Mill, for instance, the justification for the exemption of savings rests upon his well-known distinction between productive and unproductive expenditure. And Professor Fisher's analysis turns on the assumption that whereas income which is saved and reinvested is productive, i. e., yields further income, income which is "spent" does not yield further income. Professor Fisher refers to the spender as a "spend-thrift." This absolute contrast or distinction between saving and spending contains an indefinite but real error (which, I fancy, was recognized tho not expressed by the two writers). Much so-called personal expenditure is saving of the truest kind. Money spent wisely for education, for health, in travel, on vacations, in paying golf fees rather than doctor's fees, or even money spent for dress which increases the earning capacity of the spender, is in reality expenditure on capital account, for the increase of personal capital. Per contra, saving or investment in many cases gives a personal satisfaction; it is an end in itself akin to ordinary consumption. It is frequently, in Professor Fisher's phrase, "the desirable event which occurs by means of wealth and for the sake of which, consequently, that wealth is valued." In short, scientific theory justifies not complete exemption, but rather some light or moderate taxation of saved income, when the needs of the Treasury require it. But despite these and perhaps other minor modifications, recent experience amply confirms the fundamental economic expediency and logic of the attack on the taxation of savings under a personal income tax.

6. *The scientific solution.* Both economic theory and experience thus point to the partial or complete exemption of saved income or to a tax on expenditures, as the principal solution of this problem in the long run. For the short run, as the most available psychological or political means of securing an adequate reduction of the surtaxes under present conditions, there is much to be said for the proposed limitation (to say 20 per cent) of the surtaxes on income saved and reinvested in securities or other property yielding taxable income.¹ But in the long run such procedure would be too complex in my opinion for successful administration; and I am now inclined to believe that a tax upon expenditures offers the best solution, altho no final opinion can be expressed until a draft containing the details of such a tax has been worked out. However, at present, I can see no grave difficulties in the proposal, and its practical advantages would be very great. The taxpayer and the government both would be spared the great difficulty of determining depreciation, depletion, amortization, and all those difficult items of estimated expenses which rest upon valuation and judgment. The inventory problem would disappear. Most of all we should avoid the difficulty presented by the tax-free bond.

The tax on expenditures would, of course, present its own peculiar problems. There is some little question about its constitutionality. It would be necessary to draw a line between personal expenditures and expenditures for profit. Expenditures made on "gentlemen's farms" and shooting preserves; real estate taxes paid on farms and homes, would raise nice questions. Obviously such a tax could not serve as the principal tax on busi-

¹ Explanation and discussion of the details may be found in T. S. Adams, *Needed Tax Reform in the United States*, pp. 11-13, 30, 31; Annual Report of the Secretary of the Treasury, 1920, pp. 33, 34, 37, 38; Report of the Tax Committee of the National Industrial Conference Board, Special Report No. 18, pp. 35-38.

ness. We shall probably keep a flat or normal income tax both on individuals and corporations to satisfy the tax obligations of producers and earners. But for the determination of surtaxes, expenditure appears to offer a sound theoretical and practical basis. The \$5,000 exemption, which would presumably be retained, would take care of most of the deductions about which debate would center. Expenditures for medicine, doctor's bills and education of children, along with "the minimum of subsistence," should be specifically exempt. The tax could not be made applicable to the expenditures for the year 1921, but might easily be put into effect beginning with the calendar year 1922.¹

7. *The immediate solution.* As a question of immediate legislation, however, the best remedy is probably the simplest remedy, i. e., a sharp limitation of the surtaxes to a maximum rate that would permit wealthy taxpayers to invest in taxable securities, and which would stimulate or start the great volume of profit-taking which has been held up by existing tax rates. It is vitally important that this maximum rate be fixed low enough to produce the desired results. It would probably be a mistake to cut off the tail by inches. It is commonly said in Washington that it will be impossible to reduce the maximum surtax below 40 per cent. Personally I am in grave doubt whether any such reduction would be worth while. For persons subject to a 40 per cent surtax and an 8 per cent normal tax a 5½ per cent municipal bond would be more productive than a 10 per cent taxable security. A tax of 33 per cent (25 per cent surtax plus 8 per cent normal) is the highest rate which, to my mind, would effect the desired results; and a 28

¹ The practical advantages of the expenditures tax were first brought to my attention by Mr. G. O. May. They have, however, been independently discovered by Mr. Chester A. Jordan, who discusses them most helpfully in a booklet entitled, *The Spending Tax*.

per cent total rate in my opinion would be more surely effective and profitable to the government. Such a reduction of rates would cause a temporary loss of revenue, but fortunately this temporary loss would not be inordinate. The taxable income now reported in the upper "brackets" has so shrunk that a limitation of the maximum surtax to 25 per cent would cause a loss of revenue, according to my estimates, not in excess of \$75,000,000 and this estimate takes no account of the stimulating effect that lower rates would have on sales and profit-taking. If a simple limitation of the maximum rate cannot be secured, then the situation is grave enough to warrant the reduction on "saved and reinvested income" referred to above. After all, our deepest troubles arise from the overstrain brought by excessive rates applied to business and investment income. "Spent income" can stand rougher treatment.

II

INCOME TAXES UPON CORPORATIONS AND BUSINESS

8. *The income tax as a producer's or business tax.* No agreement about income taxation is to be hoped for until the truth is realized that the personal income tax and the income tax as a business tax are for practical purposes different things. To put it more exactly: the income tax is different as affecting taxpayers in their respective capacities of consumers and producers. The two are, of course, related. They will be, and should be, linked together for purposes of administration. But their aims, their technique and their limitations are so different as to make it absolutely essential to think about them first separately, before we think of them together. The writer has discussed this question, inadequately, in another place; and for justification of the

above conclusion the reader will have to be referred to that discussion.¹ Its truth will appear on any consideration of the jurisdictional problems of income taxation. We insist, and the rest of the world insists, upon taxing income where it is earned as well as where it is spent.

If the members of a partnership engaged in business in Detroit all live in Canada, and the partnership competes actively with business concerns the owners of which live in Detroit, our people will not consent to exempt the Canadians while the owners who live in the United States are taxed on their entire expenditures or income (perhaps derived in large part from Canadian investments). Moreover, individual business men and partnerships are in active competition with corporations the stockholders of which may be drawn from very different classes and several different countries. Business competes with business, not owners with owners. The partnership and the corporation to a certain extent derive similar advantages from the government and are the source of similar expenses to the government. So long as the business world is split into many political jurisdictions and business men continue to live in one jurisdiction and own property or conduct business in other jurisdictions, so long will there continue to be taxes on business and business entities — meaning by business, productive activity.

9. *Relation between personal and business income taxes.* The application of this general truth to the problem under discussion is to some extent obvious. A tax upon expenditures or "spent income" cannot wholly take the place of the income tax as we know it. Income must to some extent be taxed where it is earned, at rates and by methods determined by the conditions

¹ Proceedings of the National Tax Association, 1917, pp. 185-194; also "Preliminary Report of the Committee Appointed by the National Tax Association to Prepare a Plan of a Model System of State and Local Taxation," Proceedings, 1919, pp. 451-457.

under which it is earned — not by the conditions under which it is spent. The dual structure of the income tax as it exists in Great Britain, the United States and other countries is no accident. It is not a mere by-product of stoppage-at-source. It is a more or less imperfect recognition of the fact that corporations and other business units derive benefits and compete with one another as units, in the jurisdictions in which they do business; that it is impossible to ascertain the status of the owner of every interest in a business unit; that the business entity has an individuality and capacity to pay of its own; and that because of these facts business entities should in some way and to some extent pay taxes as such.

All this means in a practical sense that *if the income tax is to be maintained as our principal tax on business*, it should follow in a general way the structure of the tax which we now have. Corporations cannot be exempted and the tax confined to the stockholders. Some form of a proportional or degressive normal tax must be retained. Many plans have been devised in recent months whereby the corporation might be wholly exempted from the income tax, the distributed income being taxed in the ordinary way to the stockholders. All this is logical enough as regards that part of the corporation income tax which may be properly regarded as the equivalent of the surtaxes on saved income paid by individuals and in effect by partnerships. But it does not bear critical examination, and it would not bear the test of experience, if applied to the burden or charge represented by the normal tax. It would split, if for no other reason, on the question of taxing the share of the profits assignable to nonresident stockholders.

In its larger outlines the structure of the present income tax is sound. The normal tax satisfies the demand

for a business charge collected upon all income derived from services rendered, property located and business transacted with the United States. In the case of non-resident aliens and foreign corporations, the normal tax should be stopped at source and should apply to interest and rentals. But it should not apply to dividends, since dividends received from corporations doing business in the United States are taxed as part of the income of the corporations from which derived, while dividends received by nonresidents from corporations doing business *without* the United States should be exempt from normal or business tax.¹

10. *The proposed corporation surtax.* Theoretically — meaning by that word “in the long run” — saved income should be nearly if not wholly exempted from surtaxes. If this principle were followed, nothing more than the normal tax would be levied on corporations, since the distributed income of the corporation would be subject to surtaxes in the hands of its stockholders, while its undistributed profits would be entitled to practical exemption as saved income. But Congress is not now likely to follow theory. Surtaxes of considerable weight are likely to be retained upon the larger incomes, whether saved or spent. Such surtaxes being retained, the practical problem of dealing with the corporation cannot be satisfactorily solved, because the problem starts with a mistake. Its initial premise is an error, and any solution must share in that error.

Many solutions are proposed. (1) A flat corporation surtax of 5 or 6 per cent, such as has been adopted in Great Britain. (2) A flat corporation rate, normal and surtax, of 20 or 25 per cent, the stockholder to include

¹ The theory of the present law as it relates to such dividends is wrong, but in practice any foreign corporation can secure the exemption of its dividends from our tax when received by resident stockholders by buying a \$50 Liberty bond or in any other way making even the smallest part of its income “taxable under this title.”

all dividends in income and thereafter take a full credit (dollar for dollar against his tax) of the 20 or 25 per cent tax which has been paid for him by the corporation. (3) A flat or proportional tax on the undistributed profits of corporations with explicit authorization of the many forms of "constructive dividends" by which corporations have been able lawfully¹ to distribute profits but actually hold the funds for reasonable use in the business. (4) Various forms of graduated taxes on undistributed profits, the rates progressing in some plans in accordance with the ratio of the undistributed profit to the total income and in other plans with the amount of undistributed profit and its relation to the invested capital of the corporation.

All of these solutions are marked by very grave defects. A corporation surtax of 5 or 6 per cent, making a flat tax of 15 or 16 per cent upon the entire net income, would be an exceedingly heavy tax where the profits were low. This weakness of the first plan shows itself particularly in the case of public service corporations. Hence many of those who endorse this plan would exempt from the surtax all utility companies subject to public regulation. Under the second plan the rate of tax *upon the corporation* would be even heavier; and except in the type of corporations sometimes referred to as "private corporations" or "incorporated partnerships," the rebate or credit to the stockholder would not materially ease the strain upon the corporation. In fact all of the solutions enumerated in (2) and (4) err, in my opinion, in giving the stockholder a credit for the normal

¹ In *Eisner v. Macomber* (252 U. S. 189) the Supreme Court held that the device of taxing stockholders on their distributive shares of the undistributed profits of the corporation, as is done in the case of partnerships, would be unconstitutional. A few lawyers have expressed a partial dissent from this interpretation of the reversal of *Collector v. Hubbard* (79 U. S. 1) in the stock dividend case, but it seems to me wholly beyond dispute, at least in the case of corporations other than personal service corporations.

tax paid by the corporation. A normal tax, e. g., a moderate tax upon the American Telephone and Telegraph Co., is in no genuine sense a tax upon each stockholder, in such a way that the stockholder is entitled to credit for it against his personal income tax, or (if his personal income be insufficient) entitled to an actual refund or rebate.

Plans (3) and (4) encounter the business man's deep and in many respects justifiable resentment against the taxation of savings. Moreover, the plans enumerated under (4) are to some degree complicated, particularly the proposal to base the graduated rates on the relationship between undistributed profit and invested capital. Even tho the invested capital be based strictly on original cost, it is, for reasons stated in the preceding article¹ indefensibly unequal and complicated in its operation.

It is hard to make choice between these evil alternatives. If the personal surtaxes on saved income could be brought as low as 20 per cent, the proposal for a flat tax of 20 per cent on undistributed profits would, to my mind, represent "the minimum evil." It would have the great advantage of equalizing the maximum tax on income saved by corporations and unincorporated taxpayers. Surtaxes on saved income no doubt are particularly harmful. But, if other taxpayers must pay them, is there any sound reason why corporations should not pay? Under the excess-profits tax, corporations have on the whole been taxed more severely than other taxpayers. They may fairly ask equal treatment when the excess-profits tax is abolished. But it would be the part of wisdom for them to share the common lot. If they strain for something different, that is or appears to be an advantage, they are likely in the end to get some-

¹ *Quarterly Journal of Economics*, May, 1921, pp. 376-386.

thing worse. Moreover, by means of scrip dividends, or by taking advantage of an option (through unanimous agreement of the stockholders) to be taxed as a partnership, or by an arrangement with the stockholders to pay the increased tax of any stockholder who included in his personal return his share of the undistributed profits of the corporation — all of which expedients should be explicitly legitimized in the law — the corporation could escape the tax on undistributed profits altogether and yet keep the money for actual use in the business. Finally, an undistributed profits tax of 20 per cent would be less than the proposed 5 per cent surtax (which in reality is a 7 per cent surtax, since the normal tax on corporations exceeds that on individuals by more than 2 per cent). This follows from the fact that the undistributed profits of the average corporation at the present time amount to probably less than 20 per cent of its net income. The mere fact that the tax would be in form placed upon undistributed profits does not seem to me as essential as it does to the average corporation and its advisors. On the other hand, this whole problem is primarily one for the business men of the country. So long as corporations on the whole pay a fair equivalent for the surtaxes upon saved income paid by other taxpayers, the business world may fairly be permitted to select the method of taxation which most appeals to it.

But if surtaxes running as high as 40 per cent are to be retained, it will be impossible to place this maximum rate upon the undistributed profits of corporations. The fact that it would be impossible, I may remark, illustrates the deep error of 40 per cent or similar rates as applied to the saved income of individuals and partnerships. If unthinkable in the case of corporations, they ought to be similarly unthinkable in the case of other taxpayers. If the personal and corporation taxes

cannot be organically linked by the imposition of the same maximum rate on savings, then the first solution, the flat corporation surtax of 5 or 6 per cent, impresses me as altogether the most expedient and plausible solution. It is essentially a compromise, too heavy in its indirect burdens upon the small stockholder, and much too light upon the wealthy stockholder who saves by way of the corporation in order to avoid the individual surtaxes. But the situation is one in which some compromise of principle seems unavoidable. This at least has the merit of being simple and plain.

III

BASIS OF THE BUSINESS TAX

The conclusions reached in the preceding section rest upon the assumption that the income tax will be retained as the principal federal tax on business; an assumption which is safe for the next year or two. But we are equally interested in what should be done in the next decade or two. With this in view, it becomes necessary to inquire what is the true basis of business taxation. Here, as elsewhere in taxation, the "true basis" is the basis that will work best in the long run, that will cause the minimum evil and fit in most helpfully with the fundamental conditions of the economic, social, and political world in which we live.

The practical choice here is between net income on the one hand and sales or gross income on the other. Fortunately it is not necessary to discuss the sales tax as an additional tax or as a substitute for the miscellaneous excise taxes now in force. The sales tax is of interest here only as a substitute for the tax on net business income.

11. *Shifting.* We may go at once to what impresses

the writer as the most potent argument or series of arguments against the tax on business income. "All taxes," it is urged, "are shifted. It is unnecessary and unwise, therefore, to saddle business with taxes which achieve a semblance of equity at the expense of simplicity, certainty and administrative efficiency. Let taxes be simple, certain and plain; their equitable distribution will be achieved through the inevitable processes of shifting or diffusion." There is truth in this. It seems to me almost certain that under American conditions surtaxes exceeding 50 per cent would in the long run be shifted in material part, and that a corporation income tax of 15 per cent would be shifted in minor part. The accepted economic theory has been that a general personal income tax cannot be shifted. But our income tax is not wholly a personal tax and it is not general. In the face of a large supply of tax-free securities, capital will certainly not flow into private business unless there is a prospect of earning in the long run as much as it could earn if invested in municipal bonds. Assume a radical increase of tax rates such as took place in 1917. If all taxpayers were subject to the same rate of income tax, the level of business profits would rise in the long run, and the interest rate upon tax-free bonds would fall ¹ until the net return from tax-free bonds would be equivalent to the net return from business investments, due account being taken of risk and taxes. And the fact that some taxpayers are subject to no income tax or to a very low rate, does not seriously modify the foregoing conclusion. It cannot wholly check the rise in the rate of business profits. The flow of poor men's money into private business is not equal to the flow of rich men's

¹ This fact is usually forgotten. The rate of return that would otherwise be secured from tax-free securities is reduced by the demand for such securities created by the liability of other investments to heavy taxation. Municipal bonds are not "untaxed" as they seem to be.

money out of private business into public securities. The great mass of smaller investors to whom the tax rate is a negligible factor, do not seek miscellaneous business investments and should not be encouraged to do so. It seems to be the opinion of the banking and investment world that industrial investments are, in the main, made by persons to whom the tax rate is a real factor; and this is probably the case.

Yet, tho all this is doubtless true, its significance is frequently misstated. It does not mean that all income and profits taxes are shifted, and in particular it does not mean that they are promptly or readily shifted. They are shifted in part only, and by a slow process of diffusion. The process is slow because the shifting is caused by the withdrawal or transfer of capital which does not occur frequently by any general process. The repeated charge that business men figure income taxes as part of their cost and then charge the customary percentage of profit on the increased cost basis, is next to absurd.¹ If it were true, it would only be necessary for Congress to increase the income and profits taxes in order to increase business profits. Taxes were responsible in only minor degree for the high cost of living. The cost of living went up before tax rates were increased, it stayed up when tax rates were reduced, and it will come down in the future whether tax rates be increased or reduced.

The argument that "all taxes are shifted; therefore ignore equity and select the simplest tax," is particularly misleading. Even tho we may be certain that some part of the tax may be shifted or diffused in the long run, its initial incidence is of enormous importance. Property taxes on buildings are shifted in the long run,

¹ The charge that war prices were due in a material degree to the shifting of income and profits taxes is discussed in my booklet on Needed Tax Reform in the United States, pp. 20-23.

but this does not make the tax a matter of indifference to the owners of buildings. The proposed sales tax, we are told, would operate like a new and general business expense, such as an increase in rentals. This impresses me as a fair statement for the purpose; yet a proposal to increase rentals or any other cost at the present time would be regarded as a matter of vital significance to the business men affected. Those who are loudest in championing the turnover tax are those engaged in industries subject to special sales taxes at the present time. They insist that all taxes are shifted; but they strenuously object to the taxes which they must therefore be shifting. Their position is not necessarily illogical but it proves that the initial incidence of the tax is a matter of deep significance. Whether taxes are shifted or not, the fact that the income tax is assessed only when the taxpayer has some net income wherewith to pay constitutes a most important practical virtue of the income tax. The owner of a building or machine does not find it any easier to pay property taxes in a lean year, because of the sound theory that in the long run such taxes are shifted to producers or consumers.

12. *Simplicity versus equity.* There is or should be nothing sacred about the net income tax. It can claim no divine right to supply either the fundamental principle or the practical working measure of business taxation. Business taxes are imposed "because it costs money to maintain a market and those costs should in some way be distributed over all the beneficiaries of that market. Looking at the same question from another viewpoint, a market is a valuable asset to the social group which maintains it and the community ought to charge for the use of community assets."¹ As a matter of pure business logic the government might well meas-

¹ T. S. Adams, "The Taxation of Business," loc. cit., p. 187.

ure the tax by gross business, saying in effect to the business man: "You have come amongst us and have exploited our market; you have trafficked as much as your competitor; whether you have used your opportunity as well as he, is not our concern. It is the gross volume of your trade which both represents your opportunity and causes our expense. Upon that you must pay."¹

But it is logically essential that the business man (not the consumer) should pay. And because moderate taxes on net income are shifted less and less readily than taxes on gross business; and in particular because taxes on net income are imposed only when the taxpayer has earnings from which to pay them (or to set aside a reserve for their later payment), net income has come to be accepted as the more equitable, certainly the more merciful, basis. Nor can I see sound reasons to challenge this popular judgment of its superior claims to equity.

The real case against the taxation of business on the basis of net income rests upon the very real complexity involved in its computation. It is unnecessary to dilate upon this theme. The weakness of the net income tax in this respect has not been exaggerated. And complexity is a major evil, involving the taxpayer in a cloud of uncertainty, stimulating evasion and rebellion, clogging the administrative machine, and bringing the tax into disrepute.

This is the supreme problem of federal taxation; and its controlling factors are imponderables. To take them properly into account requires wisdom rather than logic. I know of no way of discussing them convincingly in the space here available; and that must be the excuse for the personal form of the immediately succeeding paragraphs.

¹ T. S. Adams, "The Taxation of Business," *loc. cit.*, p. 189.

If I followed my personal predilections, I should vote for simplicity and inequality, selecting many simple taxes at light rates rather than more equitable but more complex taxes at heavier rates. To illustrate: (a) The surtaxes I should convert into an expenditures tax, with a high exemption of say \$5,000. (b) The normal tax on net income I should replace with a low tax on "approximate net income." By that term I mean something closely akin to "gross income" as it is defined under the present income tax law, i. e., before deduction for depreciation, depletion, amortization and the like. The sole purpose is by lowering the rate (3 per cent would probably be ample even now) to make it possible to ignore those complex deductions which now go so far to discredit the tax. The basis might as well be described as one of "modified gross income." On salaried men and investors the tax would take the place of the present 4 per cent subnormal tax and operate very much like it. In the case of producers and sellers of "goods, wares and merchandise" further simplicity could be achieved, if desired, by giving the tax the form of a sales tax with a credit or refund for taxes paid by the producer or dealer (as purchaser) on goods bought for resale or for necessary use in the production of goods for sale. It will be noted that the proposed tax on "approximate net income" avoids the strongest arguments against the turnover or sales tax, namely, that it would be pyramided, create a grossly unfair competition between synthesized and single-process industries, and exempt those occupations or transactions such as banking, advertising, professional service and the like in which the profit or gain does not arise from a "sale." The worst features of the turnover tax arise from its application to "cost of sales," which would of course be subtracted or eliminated under the proposal here made.

(c) The two preceding taxes would fail to reach, as the income tax now fails to reach, the majority of the people of the country who nevertheless have some real capacity to pay as is revealed by their enormous consumption of semi-luxuries. This fund of taxable capacity I should tap with a number of consumption taxes, both import duties and excises, capable of clear definition and successful administration, such as taxes on tobacco, amusements, sugar, tea, coffee, chocolate, rubber, and gasoline. Such articles would be selected not because their consumption is harmful — I believe in the “necessity” of luxuries — but because they represent effective and convenient points at which to tap the taxable surplus of the consumer. (d) In addition, of course, there would be the estate or inheritance taxes, and the stamp taxes, from both of which much greater revenues could be secured.

In some such form as this would be the federal tax system as I should construct it. The plan has little chance of adoption. It serves, however, the useful purpose of illustrating the futility of basing one's principles on one's personal experience. It demonstrates the supreme necessity of subordinating administrative logic and personal predilections to the great political and social forces which control the evolution of tax systems. These forces must be accepted as facts. The historical fact is that modern states prefer equity and complexity to simplicity and inequality. The cry for equality and justice is louder and more unanswerable than the demand for certainty and convenience. You may think it sentimental and stupid, but that does not alter the fact.

The general property tax, or even the tax on real estate, is one of the most difficult taxes known to man, or at least would be if conscientiously administered. The complexities of our customs law and administra-

tion are almost unbelievable to the person who has not looked minutely into the details of the law and its administration. The income tax, whose complexity is not exaggerated by its critics, spreads and grows; it has a deeper and wider following with the passing generations. It seems to be particularly irresistible in a democratic state in which customs, excise or sales taxes (whose burden is or is believed to be regressive) constitute the backbone of the tax system. Replace the complexities of the income tax with the simplicities of the sales tax tomorrow, and within ten years the income tax would be back. In the light of financial history "simplicity" is a lesser god.

The truth of this statement can be tested by a simple experiment. There is a tax which is costless, incapable of evasion, wholly simple, quite productive, and having no particularly evil characteristics of incidence and burden: the proposed increase of one cent in the first-class postal rates. Moreover, at the present time, the postal service is running at a deficit. Yet has this tax any chance of adoption at a time when the country is clamoring for "simple taxation"? Practically none. Have the simple and productive "breakfast table" taxes any chance of a respectful hearing? None. They are ignored by the people, by both political parties and by Congress. These, it is stated, are considerations for the politician, not for the scientific economist. I know of no relevant and enduring factor which the social or economic scientist is justified in ignoring. There are temporary gusts of irritation or political prejudice, transitory whims of fancy, eradicable ignorance which may profitably be ignored by the scientist. Perhaps some of the imponderables noted above illustrate temporary rather than enduring factors. But the insistence upon equity at the expense (if necessary) of simplicity,

the demand for the thoro application of some variety of the income tax, are enduring forces which cannot be ignored. When conclusions are desired which shall be applicable, not to the present moment and not to the next century, but to the coming generation, they represent the fundamental factors. I accept them not only as facts, but as expressing in general direction and import a larger wisdom than can be drawn from my personal feelings and experience. In strategy if not in tactics, as regards general direction rather than detail, I would put my trust in history rather than in experts. "Believe me, sir, there is more wisdom in institutions than in men."

In all this we find the answer to the sound criticisms that complexity makes for administrative failure and for dishonesty on the part of the taxpayer. It does; but I can interpret the stubborn insistence upon "equity" only as meaning either that the administration must rise to its task or that "equity will be served" even at the cost of continued maladministration. As for the charge that "the income tax is a tax on honesty," it may be noted that while simplicity conduces to honesty, it does so no more effectively than equity. The simplest taxes in this country, the poll taxes, are the worst enforced. The demoralization of taxpayers under the property tax as applied to credits and securities has been in no appreciable degree due to complexity. The taxes are simple enough. And most of the irritation aroused by the income tax in this country is due to its enforcement, not to its evasion. The irritation which accompanies the collection of direct taxes is a wholesome tonic to a democracy.

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THE MEASUREMENT OF CHANGES OF THE GENERAL PRICE LEVEL

SUMMARY

Aim and method of the present inquiry, 557. — The two fundamental problems, 558. — Prices should be treated as ratios, 559. — When so treated the paradox of the arithmetic and harmonic means is resolved, 559. — Ratios are not fractional quantities, 561. — The completely weighted arithmetic mean is a ratio of aggregates, 563. — Geometrical representation of the price level, 563. — The method of least squares, 566. — The method of summation, 568. — Changes of the general price level, 568. — Effect of changes of the relative importance of trade in different types of commodities, 571. — Substitution of "dollar's worths" for physical units, 571. — Fisher's index number, 572. — Conclusion, 573.

THE violent price changes of the past few years have given new importance to index numbers and new interest to the problem of the best way of constructing them. It may be too much to hope that any general agreement upon the right solution of this problem is in sight. But substantial progress toward such agreement has unquestionably been made. The debatable issues have been narrowed. There are, for example, few who would now hold that one type of index number very commonly used in the past — the arithmetic average (weighted or unweighted) of the percentage ratios between prices in a given year and prices in a basing year, *i. e.*, the arithmetic average of "relative" prices — is other than unsound in principle and misleading in the results it gives.

Possibly the most fruitful recent work in this field has involved careful comparison of the results yielded by

different types of index numbers.¹ Agreements, differences, and anomalies in these results have been traced back to their roots. In this way much light has been thrown upon such matters as the choice of the original data, the peculiarities of different sorts of averages, the effects of weighting, and the results of choosing one basing year rather than another. But the present paper is born of the conviction that to such empirical studies, valuable as they have proved themselves to be, there must be joined a frontal attack upon the theoretical issues involved in the problem.

There can be no final agreement upon any system of index numbers until there is agreement upon the precise meaning of the phenomena they are supposed to record. We must formulate our problem before we can hope to solve it. This paper is offered, therefore, as a preliminary exploration in the field of the general theory of index numbers of price movements. In this field there are two fundamental questions: (1) Just what are the measurable phenomena defined by the phrase, *changes of the general level of prices*? (2) Similarly, what is the precise meaning to be given to the phrase, *average changes of prices*? For the present I limit myself to the first of these two problems. I hope to deal with the second in a subsequent paper.

For convenience we may begin by taking the general level of prices as defined by P in the equation of exchange, $P = M/T$, where M is the amount, in money units, of money and of bank deposits exchanged during a year or other definite short period of time for the goods whose general price level is sought.² T is the quantity of

¹ In this connection any student of index numbers will think of the work of Fisher, Mitchell, and Persons. The other recent writers on the problem to whom I wish to acknowledge an especial measure of personal indebtedness are Messrs. Flux and Walsh.

² M , as used here, corresponds to $(MV + M'V')$ of Professor Fisher's formulation of the equation of exchange.

goods exchanged for M , measured in the physical units to which price quotations refer. P is thus the (arithmetic) average amount of money paid by buyer to sellers per physical unit of goods purchased. The problem is to determine a series of numbers whose variations shall have the closest possible correlation with the variations of P in successive periods of time.

Now a price, as a statistical datum, is *always a ratio*. A quantity of money is not, for statistical purposes, a price, apart from its relation in exchange to a definite quantity of goods. Just as P , the average price of all goods bought and sold, is the ratio between M and T , so any price, p , is the ratio between m and t , where m is the number of money units paid for t units of goods.

Commonly, price quotations run in terms of the ratios between various amounts of money and single units of goods, that is, in terms of *unit prices*. The consequent of the price ratio is made unity, and price is expressed in terms of the antecedent alone. But this convenient practice should not be permitted to obscure the fact that unit prices are themselves ratios, that a price of two dollars per bushel, for example, may be expressed not only as the ratio between 2 and 1, but quite as accurately as the ratio between 4 and 2, or between 30 and 15, or as any other equal ratio.

A good example of the significance of the point that in devising index numbers prices must be treated as ratios is given by what may be termed the paradox of the arithmetic and harmonic means. "In European countries," says Professor A. C. Pigou,¹ "price is usually measured by naming the number of units of the standard of value which will buy a unit of the commodity; in India it is measured by naming the number of units of the commodity which can be purchased by a unit of cur-

¹ *Wealth and Welfare*, pp. 35, 36.

rency. The choice between these two ratios is obviously a pure matter of arbitrary convention. But, to combine price ratios taken on the Indian plan into an arithmetic mean is equivalent to combining similar ratios taken on the European plan into a harmonic mean!"

By "price ratios," it seems from the context, Professor Pigou means relative prices — the ratios of prices in one year to the prices of the same goods in another year. Thus if the unweighted arithmetic mean of relative prices is $\Sigma \left(\frac{p_1}{p_0} \right) / n$, the reciprocal of the harmonic mean

is $\Sigma \left(\frac{p_0}{p_1} \right) / n$, which is the arithmetic mean of relative prices expressed in the Indian manner, such as $\frac{1/p_1}{1/p_0}$.

The effect of using the reciprocal of the harmonic mean of relative prices instead of their arithmetic mean, it will be noted, is to shift the base from one to the other of the two years involved in the comparison. That is, the reciprocal of the unweighted harmonic mean of relative prices is identical with the unweighted arithmetic mean, except that the base is shifted.

The significance of this lies in the fact that, as is well known, when basing years are shifted the results indicated by the use of the arithmetic average of relative prices are modified. Neither the harmonic mean of a group of ratios or its reciprocal will accord with their arithmetic mean. Yet prices quoted in the Indian manner are the reciprocals of prices quoted in the way to which we are accustomed. What is more important, the market facts are wholly independent of the manner of quotation. "Five cents a pound" and "twenty pounds for a dollar" are identical prices. Where the basic facts are the same the two methods of quotation should lead to identical index numbers.

Similar considerations hold with respect to un-weighted averages of simple or "absolute" prices. In general the arithmetic mean, $\Sigma(p)/n$, is not in agreement with the harmonic mean, $n/\Sigma\left(\frac{1}{p}\right)$. And no system of weighting, unless it be wholly arbitrary, will bring the two means into agreement, so long as the prices averaged are treated as quantities instead of ratios. To treat p as merely a sum of money, five cents for example, and its reciprocal $1/p$ as a quantity of a commodity, twenty pounds for example, is to handicap ourselves by a serious initial error.

But if we hold rigorously to the fundamental fact that price is always a ratio, involving two magnitudes — a quantity of money *and* a quantity of goods — the problem may be said to solve itself. The way in which prices happen to be quoted does not affect the result. Following the notation already indicated, put m/t for p . Then the only arithmetic mean which has any obvious meaning is the weighted mean, $\Sigma(m)/\Sigma(t)$, or $\Sigma(tp)/\Sigma(t)$. In a similar way the weighted harmonic mean is $\Sigma(m)/\Sigma\left(\frac{1}{m-\frac{1}{p}}\right)$, or $\Sigma(tp)/\Sigma(t)$. It is identical with the weighted arithmetic mean. This weighting of the arithmetic mean of actual prices by physical quantities of goods and of the harmonic mean by quantities of money, or "values," is in no sense arbitrary. It is clearly indicated or even compelled by elementary considerations.

The paradox which has just been discussed, like a host of other difficulties which beset the construction and interpretation of index numbers, springs from erroneous methods of handling ratios. These errors have crept into the treatment of the problem, I believe, through the habit of identifying ratios with the frac-

tions commonly used to express them. Fractions whose numerators are the antecedents of ratios and whose denominators are their consequents may be subjected to certain mathematical operations without affecting the essential nature of the relations they express. But addition and subtraction are not always among these legitimate operations. Ratios are not always safely treated as additive quantities.

Moreover, when the fractions used to express ratios are added as part of the process of finding their arithmetic mean, they are first reduced to a common denominator. This involves an arbitrary weighting of the numerators. In common practice the numerators are determined by the condition that the denominator shall in each case be unity. Then the denominators are forgotten, the numerators are termed "prices," and their mean is held to be an "average price." What the unweighted arithmetic mean of actual prices really gives is merely the average money cost per unit of a bill of goods consisting of one unit each of the different commodities whose price quotations are used. Similarly the reciprocal of the unweighted harmonic mean gives the average number of physical units of goods exchanged for one unit of money. The difference between the results given by the two means is due to the presence in each case of weighting that is none the less arbitrary because it is not intended. In one case single units of goods and their money costs are the components of the average. In the other case its components are units of money (dollars) and "dollar's worths" of goods. One mean has as good a claim to represent the general price level as the other. But for neither is the claim valid unless it is expressly understood that the mean represents merely a group of prices whose peculiar composition is dictated by the method by which the mean is constructed.

We have seen, however, that with *complete weighting* the two means lead to consistent results. The reciprocal of the arithmetic mean becomes identical with the arithmetic mean of the reciprocals of the components of the original mean. This illustrates an elementary but important difference between the unweighted and the completely weighted arithmetic mean of ratios. The unweighted arithmetic average of ratios is a "fictitious mean" of the familiar type, but its claim to represent or typify a group of ratios is marred by its hidden weighting and especially by the fact that it gives different results according as the ratios whose mean it purports to be are expressed by one form of fraction or another. But the completely weighted arithmetic average is not a "fictitious mean." In fact its title to the name average or mean might even be disputed. It is nothing but a *ratio of aggregates*. It is constructed by a process of summation rather than of "averaging." Its antecedent and consequent are the respective sums of the antecedents and consequents of its constituent ratios.

Consider an example taken from another statistical field. The proportion of the population of each state found in some specified population group, those for example who are gainfully employed, is reported by the federal census. For any one state this proportion is the reciprocal of the ratio of the whole population of the state to the number who are gainfully employed. An unweighted mean of the per cents which express the proportions found in the different states might conceivably be held to represent the proportion gainfully employed in an imaginary "average state." But its reciprocal is likely to differ, perhaps rather widely, from the unweighted mean of fractions which have whole populations as numerators and numbers gainfully employed as denominators. Yet this second mean has

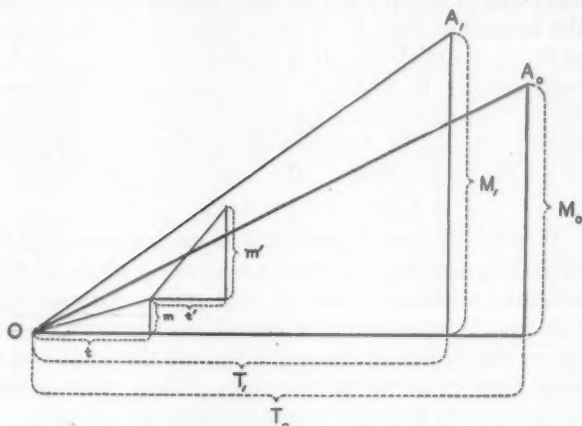
as valid a title as the first to be the ratio attributed to the "average state."¹ With complete weighting the two means are brought into agreement. But they no longer indicate a "fictitious," "representative," or "typical" condition. They express for the United States as a whole the ratio between the aggregate number gainfully employed and the aggregate population. In a similar way the completely weighted arithmetic mean which we have been discussing is not, properly speaking, an average of separate classes of prices. The ratio between the total amount of money exchanged for goods and the total quantity of goods exchanged for money directly expresses the general or aggregate price level.

It should be clear, of course, that this method of summation, of finding a ratio between aggregates, may be used appropriately in obtaining a general expression for other groupings of price ratios than those which correspond to P in the equation of exchange. The general price level of goods produced, of consumers' goods, of exports or imports, etc., may likewise be expressed as ratios of aggregates. For each special problem there is a different selection and a different weighting of the price ratios which enter into the aggregates. The ratio P , however, alone has a right to be termed *the* general price level. For price is a fact of exchange rather than of production or consumption. If prices are themselves to be taken as our fundamental facts, all the prices that

¹ A somewhat similar problem is created by the requirement of the Constitution that "Representatives shall be apportioned among the several states according to their respective numbers." The arithmetic mean will in general lead to different apportionments according as "representatives" or "respective numbers" are denoted by the numerators of the fractions used to express apportionment ratios. Precedent and tradition support the present practice of using the first of these two forms. This gives results which in the long run are more favorable to the larger states than would be obtained by using the reciprocals of such fractions. Dr. J. A. Hill and Professor E. V. Huntington have shown that this particular problem calls for the use of the geometric rather than the arithmetic mean. With the geometric mean, of course, the form the fractions take is a matter of indifference, for the geometric mean of the reciprocals of fractions is the reciprocal of the geometric mean of the fractions in their original form.

occur have to be taken into account. That is, all exchanges must be taken into account. And since exchange involves two sorts of magnitudes — quantities of money and quantities of goods — neither magnitude taken alone gives a safe basis for weighting.

Some aspects of the matter may be brought into a clearer light by a geometrical device. The equation of exchange may be represented by a right-angled triangle, as in the accompanying diagram. The horizontal and



vertical sides represent T and M respectively, while P is the tangent M/T , the slope of the third side, OA .¹

Knowledge of the absolute magnitudes of M and T would give us the value of P . But the most available and certainly the most trustworthy data are observations on the price ratios at which different goods are

¹ Similarly, the tangent M_1/T_1 is P_1 , the price level in some other year. Individual weighted prices are represented by $m/t, m'/t',$ etc. They are placed on the diagram so as to illustrate the summational method, viewed as the addition of vectors. To illustrate the method of least squares these small triangles should be so placed as to have a common origin at O .

exchanged for money. These may be supplemented, we must assume, by some knowledge of the relative magnitudes of the volume of trade in the same goods. That is, our data are certain p 's and t 's. Our facts are incomplete.

What is the best method of inferring from our partial observations the most probable value of P , that is, the most probable slope of the line OA ?

If each reported price (itself to be interpreted graphically as a tangent or slope) be taken as a separate and independent observation on the value of P , that is, on the tangent or slope M/T , the problem is obviously that of fitting a straight line to a number of observed points, each subject to unknown but presumably unbiased errors. The method of least squares suggests itself. This method, it will be remembered, involves the principle of the arithmetic mean. The appropriate formula is:

$$P = \Sigma(tm) / \Sigma(t^2) = \Sigma(t^2p) / \Sigma(t^2).$$

Where only one physical unit of each commodity is taken into account this formula becomes $\Sigma(p)/n$, the unweighted arithmetic mean of unit prices. Graphically this may be interpreted by conceiving the slope of the line as determined by passing it through the origin and a point fixed by the arithmetic mean of the n values of the ordinate m at the point where the abscissa t is unity.

Taking the different magnitudes of t into account, the method gives a less familiar result. The ratio $\Sigma(t^2p) / \Sigma(t^2)$ is an arithmetic mean weighted in accordance with the squares of the numbers of commodity units sold at the stated prices. That is, it is what is commonly deemed a properly weighted arithmetic mean, operated upon by again multiplying its different component terms by the weights already used.

But the old difficulty remains. Invert the triangle, using its base as an axis, and then rotate it in a clockwise

direction so that its vertical side becomes horizontal. The slope of the hypotenuse is now T/M , or $1/P$. The formula for determining this slope, according to the method of least squares, is $\Sigma(mt)/\Sigma(m^2)$, or $\Sigma\left(\frac{m^2}{p}\right)/\Sigma(m^2)$.

Letting m equal unity this gives $\Sigma\left(\frac{1}{p}\right)/n$, the reciprocal of the unweighted harmonic, not of the unweighted arithmetic mean. Nor is the weighted form, $\Sigma(mt)/\Sigma(m^2)$, the reciprocal of the correlative form previously found, $\Sigma(tm)/\Sigma(t^2)$. Their product is $[\Sigma(mt)]^2/[\Sigma(m^2) \times \Sigma(t^2)]$, which is not, in general, equal to unity.

As between these two weighted forms there seems to be no ground of preference. But they may be combined or averaged so as to give each of them equal weight. This is best done by using the geometric mean. The result is $\sqrt{\Sigma(m^2)/\Sigma(t^2)}$, or $\sqrt{\Sigma(t^2 p^2)/\Sigma(t^2)}$. The method of least squares, therefore, does not lead to the ratio of aggregates, but to another weighted arithmetic mean, the square root of a weighted average of squares in which the weights are also squared.

The use of this formula, novel as its application to price statistics is, might perhaps be justified in cases where the price quotations available could properly be regarded as merely a relatively small random sample of the complete series of actual prices. At any rate, this weighted average of squares is the only defensible form of arithmetic mean of actual prices which can be regarded as "representative" rather than "summational" or "aggregatic."¹

In general, however, the analogy between the relation of observed prices to the general price level and the rela-

¹ A useful descriptive adjective, suggested by Professor Irving Fisher.

tion of points given by experimentation or observation to the equation of the best-fitting curve or line may easily be stressed too heavily. Price statistics are not, in a strict sense, independent observations of an unknown magnitude — the general price level. Each recorded observation is a partial rather than an independent report on that magnitude. The antecedent and the consequent of the reported price ratio enter into the sums which constitute the antecedent and consequent of the general price ratio.

If all exchanges were reported, the equation of exchange could be written $P = \Sigma(m)/\Sigma(t)$. And if, tho not complete, our list of reported prices is reasonably large and representative, it may be used to give a *partial sum*. That is, we take $\Sigma(m)/\Sigma(t)$ as giving a workable approximation to M/T . We must assume, therefore, either that the remainders $M - \Sigma(m)$ and $T - \Sigma(t)$ are relatively small as compared with $\Sigma(m)$ and $\Sigma(t)$, or that the unknown ratio $[M - \Sigma(m)]/[T - \Sigma(t)]$ is not likely to be greatly at variance with the ratio $\Sigma(m)/\Sigma(t)$, and as likely to be above it as below it.

In practice, as we have already seen, this method means the use of the ratio of aggregates. Graphically, this amounts to determining the slope of the line OA by passing it through a point whose ordinate is $\Sigma(m)$ and whose abscissa is $\Sigma(t)$. This is equivalent, of course, to the addition of a series of vectors, each of which is determined by a particular weighted price ratio, m/t , just as OA is determined by M/T .

With the general price level determined there is no technical difficulty in the way of comparing one year's prices with another's by constructing a series of index numbers representing the fluctuations of the general price level. It is necessary only that the price level in

each successive year be expressed as an independent magnitude. With this condition met relative changes in the price level are easily determined. The results do not depend upon the selection of a particular basing year or period.

With constant weighting $\Sigma(t)$ is constant, and the index numbers express merely the fluctuations of $\Sigma(m)$. In this form index numbers of the general price level are the "weighted sums" which several recent writers have ranked among the better index numbers, and which have proved themselves serviceable in practice. But tho free from some of the defects of other familiar types of index numbers, these weighted sums are not wholly satisfactory expressions of the general price level. They indicate merely the varying amounts of money payments required by sales of constant quantities of goods at prices determined in part by the condition that such sales have not in fact been constant. Or with other weights than t , they may indicate the changing market value of a constant volume of production, or the changing cost of a fixed bill of goods or of a fixed standard of living.

Another sort of weighted sum is possible. If $\Sigma(m)$ and its constituent parts are treated as constants $\Sigma(t)$ would serve as a weighted sum. Its variations would show the fluctuations in the volume of goods that would be sold under the condition that constant amounts of money are assigned to the purchase of each commodity at prices determined in part by the condition that money payments are not, in fact, constant.

The two different types of weighted sums give different, and inconsistent, index numbers. There is no reason to prefer one to the other as an index of the "general level of prices." For this purpose neither is satisfactory. Each has its own significance, but this

significance lies in the particular meaning determined by the method of construction. Paucity of data makes the second type impracticable except for the study of limited fields of production, consumption, and trade. But it has a better right than the other to be considered an index of the "purchasing power of money."

As compared with the weighted sum, the ratio of aggregates has not met with equal favor. This may be accounted for by a variety of circumstances. Doubtless the limitations in the meanings of other types of index numbers, including weighted sums, have not always been fully realized. Moreover, the magnitudes, even the relative magnitudes, of t (as of other possible weights that might represent physical quantities) are so incompletely and inaccurately known as to discourage attempts to estimate and utilize their fluctuations in index numbers of the general level of prices. Most of all, I suspect, it has been felt that an average into which enter such heterogeneous things as tons, yards, gallons, and dozens, is devoid of meaning.

With respect to this last objection it should be observed that for ascertaining the price level there would be no advantage in converting these incongruous physical units into some common measure, tons for example, as is sometimes done in statistics of foreign trade. This would merely introduce a new and deceptive system of weighting. Moreover, price ratios between homogeneous money units and heterogeneous units of goods are themselves comparable things, and such ratios are all that is involved in the ratio of aggregates. The price ratio itself is taken as the fundamental statistical datum. In that ratio each physical unit figures merely as the quantum in terms of which prices are made and recorded. Viewed as quantities the different sorts of physical units are, admittedly, not properly comparable one with another.

But they are used here merely as terms in ratios, and the comparability of such ratios is implied in the very phrase, "the general level of prices."

A serious difficulty appears, however, when the changing volume of trade in different types of commodities is taken into account. Other things being equal, if sales of commodities whose unit prices are low come to make a larger proportion of the total volume of exchanges, the fact will be reflected in a lower general level of prices. Similarly, if the sales of commodities whose unit prices are high grow faster than other sales, the general level of prices will be higher. While not without their own significance, changes of this kind obscure the action of larger forces.

For this reason, and, so far as I now see, for this reason only, there is some advantage in measuring trade in "dollar's worths" rather than in single physical units. Conversion of physical units into "dollar's worths" may be effected on the basis of the prices that prevail in either of any two years whose price levels are to be compared. For that year the general price level becomes unity. For the other year it becomes $\Sigma(m_1)/\Sigma(t_1p_0)$, or $\Sigma(t_1p_1)/\Sigma(t_1p_0)$, where t still represents the number of physical units sold at the unit price p , and the subscripts 0 and 1 indicate respectively the basing year and the other year.

This result, $\Sigma(t_1p_1)/\Sigma(t_1p_0)$, may be taken as an expression of the *relative price level*. Like the absolute price level it is a ratio between the volume of money payments and the quantity of goods purchased, but in this case the quantity of goods is measured not in tons, yards, bushels, etc., but in the amounts that were exchanged for a dollar in the basing year. In form, however, this result is merely a ratio between weighted

sums of unit prices, the constant weights, it will be noted, being not those of the base year, but those of the year whose price level, relative to that of the basing year, is sought. But it has a meaning and significance not usually attached to ratios between weighted sums.

One difficulty remains. If the basing year is shifted, so that the price level in what had been the basing year is now expressed as relative to that of the other year (which now becomes unity), we have the form, $\Sigma(t_0p_0)/\Sigma(t_0p_1)$. This is not in general the reciprocal of the other form, $\Sigma(t_1p_1)/\Sigma(t_1p_0)$. Here again the geometric mean may properly be used to combine the two inconsistent results.¹ We then have as the expression of the relative general price level in the year denoted by the

$$\text{subscript 1: } \sqrt{\frac{\Sigma(t_1p_1)}{\Sigma(t_1p_0)} \times \frac{\Sigma(t_0p_1)}{\Sigma(t_0p_0)}}.$$

I have the more confidence that this is an acceptable solution of the particular problem in hand because Professor Irving Fisher has already reached precisely this result and has adjudged it to be the best of the different formulas he has examined and tested.² Furthermore, Professor Fisher's result has the weighty approval of Mr. C. M. Walsh.³ So far as I know, however, the analysis by which I have reached this conclusion runs along lines which differ from those Professor Fisher and Mr. Walsh have followed. It is possible, therefore, that in attempting to find my way into the fundamentals of the problem I have done something to strengthen the logical foundations of Professor Fisher's index number.⁴

¹ The propriety of using the geometric mean hinges on the fact that if the two expressions were in agreement their product would be unity.

² Quarterly Publications of the American Statistical Association, March, 1921, p. 536.

³ Ibid., p. 539.

⁴ It is fair to say that most of the results of the present paper were presented to the Economics Seminar at Cornell University nearly two years ago. I did not at that time, however, suggest that the geometric mean be used to get a synthesis of two inconsistent results.

On the basis of the evidence now in hand I believe this to be the best single index number of the general level of prices. It is less likely to be deceptive than any other formula that I happen to know. I mean that it gives a more direct and unequivocal answer to the particular questions most students of changes of the price level are likely to have in mind. But I fear that no single index number will afford a sufficient answer to all such questions.

It should be clear, moreover, that in the present paper we have been concerned solely with the problem of changes of the general price level. The measurement of average changes in prices is in some respects a distinct and different problem.

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RECIPROCITY WITH CANADA. THE CANADIAN VIEWPOINT

SUMMARY

The reciprocity agreement of 1911, 574. — Its rejection by Canada, 578. — Reciprocity and the Underwood tariff, 582. — Canadian tariff amendments, 1911-20, 582. — The trade between the two countries, 1910-20, 585. — The present status of reciprocity in Canada, 588. — Conclusions, 591.

I. RECIPROCITY AGREEMENT OF 1911

It is not surprising that the rejection by the Canadian people, through their verdict in the general election of 1911, of the reciprocity agreement then negotiated at Washington by representatives of the Canadian and American governments, should have appeared perversely unaccountable both to the general public in the United States and to the Liberal party in Canada itself. Ever since the summary repeal of the Elgin Reciprocity Treaty in 1866 — action which contributed not insignificantly to the consummation of Canadian confederation in the following year — successive missions and overtures from Ottawa had sought to secure a renewal of reciprocity relations, and reciprocity with the United States was a common plank in the platforms of both political parties in Canada. The distant British market and the meagre domestic demand gave little inducement to the development of the country's resources, while the high protective policy of the United States largely shut off the nearest and most important market. The repeated rejection of the successive negotiations for a new reciprocity agreement or modified tariff conces-

sions, and the opening up of an all-Canadian transcontinental route with the completion of the Canadian Pacific Railway, led Canada to adopt a national policy of protection, while the passing of the McKinley and Dingley tariffs made it necessary for her to seek closer trade relations with Great Britain as a substitute for the prohibitive American market. Sir Wilfrid Laurier had announced at the time of his election to the premiership in 1896 that "there will be no more pilgrimages to Washington," and in the following year the first installment of the British Preference (amounting to one-eighth) was placed upon the tariff book. The enlargement of this preference to one-third in 1900, and its reciprocal extension to other parts of the empire, followed by the creation of an Intermediate Tariff extended by treaty to France and later to Belgium, had been pursued in order to open to Canada alternative overseas markets, and thus to lessen her commercial dependence upon her powerful neighbor.

While thus discontinuing active overtures to Washington and pursuing the alternative policy of national protection and preferential trade, Canada never ceased to entertain the prospect of freer commercial relations with the country where her economic interests most naturally lay. The enactment of the Payne-Aldrich tariff in 1909, the penalizing maximum rates of which would apply to Canada unless specially exempted by the President, made the establishment of some direct trade arrangement between the two countries seem well-nigh imperative.

Accordingly, when in return for purely nominal tariff modifications extending the Canadian intermediate rates to a dozen unimportant imports, President Taft had announced that the Payne-Aldrich maximum rates would not be extended to Canada, and when this was

followed by an invitation from Washington for a conference to consider a liberal readjustment of Canadian-American trade relations, the Laurier ministry felt that the time had at last arrived when the long-awaited agreement of commercial reciprocity could be most advantageously negotiated. The growing demand in the United States for a general lowering of the tariff, especially on foodstuffs and raw materials, gave reason to expect that a reciprocity arrangement formulated at this time would not be on terms unfavorable to Canada.

The pact eventually drawn up by Secretary Knox for the United States and by Messrs. Fielding and Patterson for Canada provided for its validation, not by treaty ratification but by concurrent legislation at Washington and Ottawa. Its scope was confined largely to the products of the farm, forest, mine and fisheries, raw and semi-prepared, and to machinery and implements of production. Manufactures generally were not included, as the Canadian government was not prepared to reduce the protection demanded by eastern Canadian manufacturers. On the Canadian side the agreement was designed to meet especially the growing insistence of the western farmers upon freer access to market in the United States and for cheaper agricultural machinery and implements.

This object appeared to be amply secured by the inclusion in the free list of cattle, hogs, sheep, and horses; wheat, barley, oats, hay, flaxseed, and potatoes; butter, cheese, and eggs; with reduced duties on meats, bacon, hams, canned vegetables, and wheat flour. The reduction in farming machinery and construction materials was less than the farmers would have desired, but the claims of Canadian manufacturers of these articles could not be altogether ignored by the government. Nevertheless reductions of from 7½ to 25 per cent were

made on agricultural machinery and implements, automobiles, cement and coal, while sawed lumber, shingles, cream separators and binder twine were confirmed "free." The biggest advantage from the Canadian farmers' viewpoint was the removal of the 27½ per cent duty on cattle, and free access to the Minneapolis and Chicago wheat markets, where prices ordinarily ranged several cents higher than at Winnipeg and from which the duty of 25 cents per bushel had hitherto limited Canadian wheat exports to considerably less than \$500,000 value annually.

Even apart from the farming community, the interests of other groups of the population seemed to be served rather than menaced by the operation of the reciprocity agreement. The border trade of convenience in food commodities, especially in fruits, vegetables, and meats, as well as in coal and lumber, was bound to be generally advantageous to the consumers of a population mainly distributed along an enormously extended frontier. The protection which the manufacturers claimed as their indisputable right was scarcely breached, much less than the agrarians and free traders would have desired. The pulp and paper manufacturers were reassured by the action of the Dominion government in announcing that it had neither the power nor the intent to interfere with the regulations of the provinces requiring all pulpwood cut on leased crown lands to be manufactured in Canada. They were aware, moreover, that in spite of Section 2 of the Canadian Reciprocity Act passed by Congress, which retained a duty on pulp and paper manufactured from crown land pulpwood, the needs of American publishers would sooner or later bring about the unconditional free admission of Canadian pulp and paper. In the maritime provinces the free admission of Canadian fish to American markets

was a long desired concession, while the Nova Scotia coal producers whose market did not reach into Ontario were not threatened appreciably by the 8 cent reduction on coal imports into Canada.

II. REJECTION OF RECIPROCITY IN CANADA

On what grounds then was such an evidently advantageous trade agreement so emphatically rejected by the Canadian people in 1911? Why did they now refuse the realization of a convention which had been a popular demand and an object of Canadian statesmanship for nearly half a century? As is usually the case in the public discussion of trade relations, the purely economic aspects became involved in, and distorted by, considerations of party politics, nationalism, and in this case, of Imperialism as well. The factors that contributed to the defeat of the agreement and of the government which championed it, altho their influence was a decidedly complex one, may be summarized with sufficient distinctness.

1. First and most decisive was the reference of the issue to the arbitrament of a general election following a prolonged and embittered partisan debate in the House of Commons. The result was strikingly similar to that which recently occurred in this country when the League of Nations issue, after the violent and obstructive contest over the reservations in the Senate, was flung into the arena of the presidential election. In each case the party which espoused the respective pacts was due to pass out of power in the ordinary trend of political events, and every partisan charge which could be brought against the government counted against the agreement and the covenant themselves.

2. Again, as the slogan of "America First" dominated the recent presidential election, so the appeal to

imperial loyalty, skillfully applied by the Conservative party, more or less stampeded the Canadian electorate in 1911. It was represented that the reciprocity agreement would lessen the value of the British Preference, and divert trade from imperial to continental channels. It was strenuously urged that the opening of the trade gates on the frontier would be the first step in American economic and eventual political domination in Canada. The bogey of annexation, supported by certain garbled utterances of Mr. Taft and the American press, was luridly projected on the near horizon. Canadian nationality and imperial loyalty were represented as directly at stake. Accompanying this were vivid reminders of the previous rebuffs which had greeted earlier Canadian proposals towards reciprocity.

3. These sentimental appeals, while the loudest, were by no means the only considerations that influenced the electors. Canada, it may almost be said, has been building up her national structure in opposition to the natural trend of economic intercourse rather than in accordance with it. Geographically the alignment of the Canadian provinces is with the corresponding border states rather than with one another. Until comparatively recently her population has been distributed as a fringe along the international boundary, and her frontier has been pushed northward with painful slowness. The 800 mile wilderness of New Ontario has long constituted a veritable No-Man's Land between East and West. Thanks, however, to the magnificent natural waterway of the Great Lakes and the St. Lawrence and to the economic marvel of the Canadian Pacific Railway, the country has laboriously developed a growing inter-provincial intercourse and traffic. The decade and a half of unexampled prosperity which Canada had enjoyed under the Laurier administration, the swelling in-

flux of immigration into the western provinces, the construction of two new transcontinental railway systems, the rapid development of overseas trade, and the rise of large manufacturing industries under a policy of protection, had combined to give Canadians a growing sense of self-reliance. A great many of those who foresaw that the reciprocity measure, with its inevitable extensions, would divert trade and traffic from the hardly constructed east and west channels into the broad and easy north and south courses, feared that this would weaken national solidarity and interprovincial interdependence.

4. While no Canadian manufacturing industries were directly threatened by the reciprocity arrangements, the Canadian Manufacturers Association, which exercised great influence in the East, arrayed itself against it, as the first installment of an anticipated general tariff reduction. They feared that if the western farmers should sell their crops and live stock extensively in American markets, they would inevitably tend to purchase machinery and manufactured goods from the same quarter. Manufacturers strenuously represented that the agreement would vitally affect the interests of Canadian labor by confining it to the production of raw materials, and shifting it from those manufacturing occupations in which the highest wages were paid. Canadian wheat would be ground at Minneapolis instead of at Winnipeg and Montreal; Canadian yearling cattle would be fattened in the Mississippi valley; the Canadian meat packers would be put out of business by the Chicago trust; the Ontario fruit growers would be ruined by the earlier American supplies. The powerful interests of the Canadian railways, fearful for their interprovincial traffic, were aligned beside the manufacturers.

5. One of the most valid objections raised against the arrangement was the insecurity of its duration. Based on concurrent legislation in the two countries, it would be subject to summary abrogation at the pleasure or caprice of either party. A revision or amendment by one side might invalidate the whole pact. Its adoption would mean the diversion of Canadian trade from its newly-established overseas channels and its readjustment to reciprocity relations. A sudden termination of the agreement, after this change had been accomplished, might cause a serious embarrassment to Canadian commerce.

6. Those who were familiar with American economic conditions and who regarded reciprocity as the playing off of one "concession" against another, foresaw that a lowering of American duties on foodstuffs and raw materials was pending in any case, and that merely by waiting Canadian farmers and paper manufacturers might very soon expect freer access to American markets, without bargaining for it by corresponding concessions.

Out of this election-time complex of calculation, sentiment and prejudice, emanated in September, 1911, a popular verdict which swept away the Liberal administration and its negotiated pact, returning 133 Conservatives and 88 Liberals. The effective victory was won in the province of Ontario, where Imperial and manufacturing interests were most strongly entrenched, and whose enormous majority for the Conservative party more than offset the net Liberal majority in the remainder of the country. The prairie provinces, Alberta and Saskatchewan (altho not Manitoba) as well as the maritime provinces declared themselves emphatically for reciprocity.

III. RECIPROCITY AND THE UNDERWOOD TARIFF. CANADIAN TARIFF CHANGES

Those who contended that the American tariff concessions for which Canada bargained in the reciprocity agreement would be forthcoming gratuitously within the next few years, were justified by the event. A comparison of the rates offered in the reciprocity arrangement with those enacted in the Underwood tariff shows that most of the market restrictions for whose conditional removal the Canadian agrarians had supported the pact, were relaxed autonomously by the American people. The American tariff revision of 1913 extended to Canada most of the benefits offered in the reciprocity agreement. It is true that oats, hay, barley, flaxseed, butter, cheese, and canned vegetables were merely reduced in rates instead of being placed on the free list as contemplated by the 1910 arrangement. On the other hand such articles as meats, bacon, lard, wheat flour, lumber, shingles, coal, pulp, and paper, which the reciprocity agreement had placed in Schedule B (reduced in duty) were free listed by the Underwood act. In the case of wheat, wheat flour, potatoes, and potato products the act made the removal of duties dependent upon reciprocal action by countries desiring the privilege. Canada complied by Order-in-Council of April 17, 1917 for wheat and wheat products, and Order-in-Council of November 7, 1918 for potatoes.¹

In the case of pulp and paper, Section 2 of the Canadian Reciprocity Act passed in Congress had provided for free admission of wood pulp, both mechanical and chemical, and paper valued at not more than 4 cents per pound, provided that no attempt had been made in

¹ For details see the excellent report of the U. S. Tariff Commission on Reciprocity with Canada (1920), pp. 42-45.

Canada to tax or restrict the export of that particular consignment or the wood from which it had been made. As the five provinces owning pulpwood forests, namely British Columbia, Ontario, Quebec, New Brunswick, and Nova Scotia, all had laws requiring that leases to cut pulpwood on crown lands could be granted only on condition that the pulpwood so cut should be manufactured in Canada, the intent of the American enactment was to apply pressure for the removal of these provincial restrictions by discriminating in favor of pulp and paper produced from pulpwood cut on private lands. The actuating policy of the Canadian provinces was the development within their borders of the pulp and paper industry for which it was felt that Canada's great forest and waterpower resources gave her a natural advantage. Since these laws were provincial crown land regulations and not impositions of export duties, the Dominion government had no jurisdiction over their enactment or enforcement, and had on that account declined to include free pulp and paper in Schedule A, so long as the American rates remained conditional. In practice it became very difficult for the American customs authorities to ascertain whether any particular consignment of pulp or paper had been manufactured from crown land or private land pulpwood, and evasions were frequent. Moreover, the insistent demand of the powerful American Newspaper Publishers Association for unconditional free paper and the growing realization of the need for conservation of American forests, together with the failure of Section 2 to secure any relaxation in the provincial regulations, combined to procure in the Underwood tariff the unconditional free importation of wood pulp of all kinds and of ordinary printing paper, not exceeding in value $2\frac{1}{2}$ cents per pound. In 1916, when the price of newsprint had so increased that

it no longer came in free under this valuation, 5 cents a pound was substituted for $2\frac{1}{2}$ cents. In April, 1920, the President signed a bill raising the exemption limit to 8 cents for a period of two years.

Let us now examine the opposite tariff fence and observe what sections Canada may have lowered or removed during the period, after having declined to remodel the barrier according to the 1910 specifications. We shall find the structure substantially intact. There has been no general revision of the tariff in Canada since 1907, the Conservative party which took office after the reciprocity election being committed to the preservation of the existing tariff. During the greater part of the period, moreover, Canada was in a state of war, and her tariff amendments took the form principally of Orders-in-Council, dictated by the exigencies of war and war finance rather than by any considered trade policy. Under these conditions the tariff was actually raised for emergency purposes. The Customs War Revenue Act of 1915 levied an additional war tax of 5 per cent on "preferential" imports, and $7\frac{1}{2}$ per cent on the intermediate and general schedules. This was even extended to many articles on the free list, but did not affect, generally, foodstuffs or agricultural machinery. The tax was removed by amendment of July, 1919, for all preferential imports; and for all others by an act of May 18, 1920. Within the limits of this general war revenue measure, however, reductions had been made from time to time on specific commodities, being in most cases concessions to the demands of the agricultural interests. The freelisting of wheat, wheat flour, and potatoes was, as we have noted, written into the tariff book in order to take advantage of the conditional exemption of those commodities in the Underwood act. Cream separators, corn, coke, barbed wire, shingles, and

certain grades of lumber were already on the Canadian free list, but with the exception of the first two they were all subject to the $7\frac{1}{2}$ per cent war tax. The relaxations in the Canadian tariff, it will thus be seen, have been comparatively slight, being made chiefly either to take advantage of American concessions, or to meet the most insistent demands of farmers (agricultural machinery, cement) and publishers (typesetting machinery).

IV. THE TRADE BETWEEN CANADA AND THE UNITED STATES

The approximate similarity of the American tariff changes as contemplated by the reciprocity commissioners and as effected by the Democratic Congress of 1913 make the subsequent period an informing one in which to observe the volume of Canadian exports to the United States, as affected by the Underwood act.

CANADIAN EXPORTS TO UNITED STATES, 1910-19

(Millions of dollars)

1910	95.1	1915	159.6
1911	100.8	1916	204.0
1912	108.8	1917	321.0
1913	120.6	1918	434.0
1914	160.7	1919	460.0

It is of course assumable that with the greater relative growth of American industrial to rural population, and of manufactured to raw material exports, during the decade, there would have been an appreciable increase in imports from Canada irrespective of tariff changes. The period of course is not a normal one. A considerable amount of the materials imported from Canada were manufactured and reexported from the United States as war supplies to the Allies and, later, to the American Expeditionary Force. Allowance must also be

made for the rise in commodity prices during the decade, the average wholesale prices in 1918 being virtually double those of 1910. Even taking the exports of 1918 at half their registered value, so as to reduce them to the 1910 scale of prices, the former showed an increase of 131 per cent over the exports of the earlier year. The opening of the American market through the tariff changes proposed in the reciprocity agreement and approximately effected through the Underwood legislation was followed by an immediate and continuing rise in the volume of those products of the farm, forest, and fisheries in which Canada's natural advantages were greatest and the demand of the United States most pronounced. The Canadian producer and the nation at large undoubtedly benefited by this one-sided application of the reciprocity arrangement.

If Canadian exports to the United States rose as the American tariff barriers fell, the maintenance of the Canadian customs restrictions does not appear to have appreciably checked the rising volume of northbound American exports, as indicated by the following figures (taken from the Canada Year Book):

UNITED STATES EXPORTS TO CANADA, 1910-20			
(In millions of dollars. Figures for fiscal years, ending March 31)			
1901	217.5	1915	296.5
1911	274.8	1916	370.5
1912	330.4	1917	664.2
1913	435.7	1918	791.9
1914	396.5	1919	746.9
		1920	802.1

While a slump appears immediately following the outbreak of the war — due presumably to the sudden acceleration of American exportation to Europe — the volume mounted rapidly after the early part of 1915, despite the customs war tax of 7½ per cent imposed by Canada in that year, and the “quasi-protection” of the

discount, after 1917, of the Canadian dollar on the New York Exchange — ranging from 8 to 18 per cent. The figures for the last four years are, of course, swollen by the sharp rise in commodity prices. Even taking the 1918 exports at half their nominal valuation they still show a real increase of 84 per cent over the 1910 figures (compared with a rise of 131 per cent in Canadian exports over the same period).

Among the classes of commodities entering most largely into this border importation, manufactures alone in 1918 amounted to more than the entire American export trade with Canada at the outbreak of the war. A great increase in iron and steel products, in cotton manufactures, and, to a less extent, in woollens, is attributable in part to the limitation, amounting in some cases to elimination, during the war of accustomed sources of supply in Great Britain. An even greater increase in drugs, dyes, and chemicals is likewise intimately related to the cutting off of German exports. In spite of the British Preference and the continuance of depreciation in German currency it is not likely that American manufacturers will be forced to relinquish the full measure of their wartime gains in these commodities in the Canadian market. The imports of automobiles and automobile parts alone increased over tenfold, in spite of a protective duty of 35 per cent, plus the $7\frac{1}{2}$ per cent war surtax. A considerable portion of the machinery imports was consigned to new or expanding Canadian branches of American mills and factories.

Of raw materials, coal, cotton, corn, fruits, tobacco, iron ore, and hardwood will continue to be substantial and stable imports, being articles which Canada either does not produce at all, or produces in inadequate quantities. The very considerable imports of fish, meats, vegetables, canned goods, and lumber, in which Canada

has if anything a greater natural advantage, are doubtless attributable to factors of border convenience, marketing, transportation, and special grades, varieties or brands. The large proportion of consumers' goods entering into the importation of the post-armistice years has been due in part at least to the sharp increase of purchasing power during the period, with the attendant extravagances in expenditure, which even the heavy Canadian luxury taxes were ineffective in restraining. The subsidence of the abnormal importation in this class of goods is already manifesting itself.

Making all reasonable allowance for inflation, war demands, and dislocation of European markets, the inevitable and permanent nature of the continental north and south trade is sufficiently manifest. If further evidence were needed it is to be found in the growth in the number of railway lines — trunk, spur, subsidiary or leased — crossing the international boundary, from six in 1895 to sixty-four at the present time. In the year 1920 Canada was the second best customer of the United States in her foreign trade.

V. PRESENT STATUS OF RECIPROCITY IN CANADA

It is now a decade since the Liberal party and the reciprocity agreement were rejected by the Canadian electorate. The subsequent passing of the Underwood legislation and the absorption of the war and war industry have kept the issue in abeyance during the greater part of the period. Canadian producers enjoyed an all absorbing market at home, on the continent and overseas, and the occasional tariff expedients of the government met some of the most insistent of the agrarian demands. With the advent of the reconstruction period, however, there has come a renewal of pressure, not only

for the adoption of the reciprocity agreement itself, but for a general tariff revision.

In August, 1919, the Liberal Convention at Ottawa, at which Mr. Mackenzie King was chosen as the successor of Sir Wilfrid Laurier, adopted a resolution reaffirming their faith in the principle of reciprocity. Their tariff policy was expressed in the following resolution:

That the best interests of Canada demand that substantial reductions of the burden of customs taxation be made with a view to the accomplishing of two purposes of the highest importance:

First. — Diminishing the very high cost of living which presses so severely on the masses of the people.

Second. — Reducing the cost of the instruments of production in the industries based on the national resources of the Dominion . . .

That, to these ends, wheat, wheat flour, and all products of wheat; the principal articles of food; farm implements and machinery; farm tractors, mining, flour and saw mill machinery and repair parts thereof; rough and dressed lumber; gasoline; illuminating, lubricating and fuel oils; nets, net twines and fishermen's equipments; cements and fertilisers; should be free from customs duties, as well as the raw material entering into the same.

That a revision downward of the tariff should be made whereby substantial reductions should be effected in the duties on wearing apparel and footwear, and on other articles of general consumption (other than luxuries), as well as on the raw material entering into the manufacture of the same.

That the British preference be increased to 50 per cent of the general tariff.

The period following the armistice has been marked in Canada by the rise in every province, with the exception of Quebec, of strong agrarian political organizations, which have shown notable strength in provincial elections and Dominion by-elections. In October, 1919, the province of Ontario, which had overwhelmed the reciprocity proponents in 1911 and in which more than half of the manufacturing industry is concentrated, repudiated its Conservative government, and returned to power the new agrarian party, the United Farmers of Ontario. The various provincial farmers' parties, which

have recently been merged and broadened into the Progressive party, under the leadership of Mr. T. A. Crezar, President of the powerful United Grain Growers (of the western provinces) own allegiance to the Canadian Council of Agriculture. This body has formulated its tariff policy in convention in the following unequivocal terms:

1. An immediate and substantial all-around reduction of the customs tariff.

2. Reduction of duty on goods imported from Great Britain to one-half the rates under the general tariff, and that further gradual uniform reductions be made in the remaining tariff on British imports that will insure complete free trade between Great Britain and Canada in five years.

3. That the Reciprocity agreement of 1911 which still remains on the United States statute book, be accepted by the Parliament of Canada, and that any further reductions of the tariff of the United States be met by similar reduction of the Canadian tariff toward the United States.

4. That all foodstuffs not included in the Reciprocity agreement be placed on the free list.

5. That all agricultural implements, farm and household machinery, vehicles, fertilisers, coal, cement, illuminating, fuel and lubricating oils be placed on the free list.

6. That every claim for tariff protection by any industry be publicly heard before a special committee of Parliament.

It is apparent that the tariff policies of the two parties are substantially the same. The Liberal party in opposition declares for a much more thoro-going tariff revision than it dared to propose in 1911, while the farmers have decided to trust to neither party, but to meet manufacturers' by agrarian organization. With both parties, reciprocity with the United States (on the 1911 basis) is regarded as merely an installment of a general tariff reduction. The proposal for an enlarged measure of imperial preference is actuated by sentimental as well as by free trade motives, while the general demand for reduction of duties upon the necessities of living is the familiar

opposition pledge to the wage-earner, which in practice usually proves susceptible of very wide compromise. It is upon the extension of the reciprocity agreement to include all foodstuffs, and all materials and implements entering into production, that both parties are most insistent and most united.

In 1919 and again in 1920 Liberal resolutions have been introduced into the House of Commons calling for immediate ratification of the reciprocity agreement, being defeated in both cases on straight party votes. During the past summer a Tariff Commission of Canadian Cabinet ministers conducted hearings from coast to coast, listening for the most part to urgent representations for unrelaxed, if not enhanced protection. Inasmuch, however, as it is practically certain that a general election will follow the present session, based largely upon the tariff issue, it may be assumed that no radical revision will be undertaken until that popular verdict has been registered.

VI. CONCLUSIONS

It is evident from the foregoing survey that for Canada the question of reciprocity with the United States is the problem of recognizing the essential economic interdependence of the two halves of the North American continent, without prejudicing her national solidarity and self-reliance. As a policy of extreme protection aiming at establishing Canadian economic independence would be both futile and self-injurious, so a policy of indiscriminate free trade would tend to make Canada merely an extensive margin of cultivation for the older developed republic to the south. Canada is a nation as well as an area. At the same time it is separated from its neighbor by a geodetic rather than a geographical boundary that forms the longest continuous land fron-

tier to be found between any two countries in the world. The trade policy, then, which is to her greatest advantage must needs be one which, while not unmindful of the sentiment of history, does not refuse to recognize the solid realism of geography.

We have seen that altho the reciprocity agreement of 1910 failed to obtain mutual endorsement, the tariff relations between the two countries have been considerably liberalized during the period since 1913, chiefly on the side of the United States. We have noted the responsive rise in the volume of Canadian exports to the United States, where American duties were lowered or removed. This 353 per cent increase between 1910 and 1918 represented a very appreciable development of Canada's agricultural, forest and mining resources, and a sustained movement of American settlement and investment in the great spaces traversed by the new transcontinentals, during war years when British and European immigration and capital were shut off. While the extraordinary overseas war demand for Canadian produce has become reduced for the present to less than even normal proportions, the vast, adjacent and semi-open market of the United States has offered a constant and expanding outlet, for those products which the comparative virginity of Canadian natural resources enable her to extract and supply to the greatest advantage. The inflation of wartime prices makes it difficult to estimate the increase in market-price which Canadian producers would have derived from the freer admission to the American market in itself, but the gain was undoubtedly present.

Such limited tariff modifications as Canada herself made during the period have scarcely justified in their consequences the fears of the reciprocity opponents. The free-listing in 1917-18 of wheat, wheat flour, and

potatoes in order to take advantage of the conditional terms of the Underwood tariff in regard to these commodities has been followed by a small increase in the importation of these articles which has presumably served border needs (where transportation or readier marketing have been determining factors), and of which the Canadian farmer himself is likely to be the last to complain. The free admission of cattle has been of advantage both to stock breeders and to Canadian packers. The slight reduction in duties on agricultural machinery has been beneficial to Canadian farmers as far as it has gone, without being prejudicial to domestic implement manufacturers.

In view of this experience of freer trade relations between Canada and the United States during the past few years, and of the general economic interdependence of the two countries, the further reduction and even removal of artificial tariff barriers would appear to be mutually desirable. Canada might expect to develop her natural resources, fill up her areas, and eventually engender thriving industries in the same way that the middle western and northwestern states progressed without protecting themselves against the older and industrialized eastern states which served both as markets and as sources of capital and population. Such is the view of the agrarian and the extreme free-trader in Canada. The protectionist points to the fact of separate nationality, to the need for revenue in face of a huge national war debt, to the depreciation of Canadian exchange in the United States, and to the capital invested and the population employed in industries established under protection. These are realities which any revision of tariff policy must take seriously into account.

There is a certain irony in the circumstance that at a time when the reciprocity party is within calculable

range of being returned to power in Canada, the party in the United States which initiated the reciprocity negotiations a decade ago has imposed, in the Emergency tariff act of this spring, duties on agricultural produce at an even higher level than that of the Aldrich act. Duties of similar character may be expected in the permanent tariff act. Even had the reciprocity pact of 1911 been in effect, it is extremely likely that the American agricultural interests would have demanded its repeal at this time. It is probable, however, that the international and wider commercial considerations involved in such an abrogation would have lessened the likelihood of its repeal, even in the present Congress. While the Emergency Tariff Act of May is by its terms a temporary measure, and while the interests of the American consumer may effect its revision sooner or later, the enactment of such legislation, followed as it well may be by the repeal of the Reciprocity Act itself lays open the whole question of American-Canadian trade relations to fresh negotiation.

Tariff and economic conditions, as we have seen, have been considerably altered as between the two countries since 1911, and details of the old agreement would need to be modified in several respects in order to arrive at the most advantageous and equitable arrangement between the two countries at this time. If, as appears extremely probable, a Liberal-Progressive majority is returned at the next general election in Canada — by which time the special occasion for the present American emergency tariff legislation will doubtless have passed, and normal economic conditions may be expected to have returned — it would seem appropriate that the respective governments, while engaged simultaneously in autonomous tariff revision, should confer anew on their reciprocal trade relations, guided by the lessons of the former ne-

gotiations, by the trade experience of the past decade, and by the present economic status of the two countries. The initiative in such a conference might well be undertaken by the Canadian Minister at Washington, whose appointment is now pending, and whose presence, it is to be hoped, will mark a new and more direct understanding between the two peoples of common origin who divide the North American continent between them. It is not unreasonable to expect that their commercial relations may be as rationally, as equitably, and as happily adjusted as their former territorial issues.

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REVIEW

BEER'S HISTORY OF BRITISH SOCIALISM¹

It is a hundred years and more since the workmen of Great Britain entered upon a struggle to bring the British nation to an acceptance of their demands for industrial and social reorganization. Mr. Beer is a historian of this movement. He is a companion in knowledge to the Webbs. The Webbs have written the history of the trade union movement proper. They have traced the growth of the wage-earners organizations from their formative period to the present time, when they include the majority of the industrial workers and their Parliamentary party is the official opposition. Mr. Beer's work contributes to our understanding of the same course of development. It is a historical study of the ideas of socialism that have had birth in the British Isles and of the presentation and espousal of these ideas.

The boundary lines observed by Mr. Beer are those of a movement, and not those of an idea. This is in contrast, for example, to the lines Anton Menger set for himself in his *Right to the Whole Produce of Labor*. It is by observation of the socialist movement of his own day that Mr. Beer seems to have decided what was to be included within his field of study, what to be excluded. All ideas or influences that contributed to it, or might have contributed, he appears to have included. Or, to put the matter differently, he undertook to describe all parts of what has appeared to him, if taken in long perspective, a single if somewhat broken wave of thought and policy.

Mr. Beer's book is more than a history of ideas, altho it acquits itself well in that direction. In common with such

¹ M. Beer, *A History of British Socialism*. Vol. i, *From the Days of the Schoolmen to the Birth of Chartism*, with Introduction by R. H. Tawney, pp. xxi, 361 (1920); vol. ii, *From Chartism to 1920*, pp. xi, 413 (1921).

histories of economic ideas as Gide and Rist's it gives an outline of the thought of the more original or prominent socialist writers. Mr. Beer has sought in addition to discover where and in what form these ideas were grasped by the nation at large, and he has given the history of such organizations as arose to support them. Thus in the second volume there is a history of the Chartist movement, and of all socialist bodies from the Christian Socialists to the Guild Socialist League of the present day. The book is a coherent history of the events of the Socialist movement, as well as a study of its doctrines. Mr. Beer may be said to have done for British socialism what the Webbs in their *History of Trade Unionism* did for British trade unionism; and the boundaries of the two works intersect.

The book under review resembles the *History of Trade Unionism* in other respects. It is narrative and not critical. The author makes no attempt to judge either socialist doctrines or activities. His explanations are those of the historian, practically never those of the economic philosopher, as are Foxwell's in his introduction to Menger. Again, in common with the Webbs, Mr. Beer has unusual skill in composition. He never seems at a loss as to where to pick his narrative up or where to put it down. He succeeds well in making clear each separate part, while showing how each fitted into the movement as a whole. It is possible that he accomplished this so well because like the Webbs, he is an insider. As author and journalist he has had more than twenty-five years personal contact with socialist thought and activities; for he was one of the first students in the London School of Economics, and for ten years was the London correspondent of the Berlin *Vorwärts*. He demonstrates by his work his cognizance of the fact that the movement he studied was at every stage influenced by the course of thought within the nation as a whole, and by the general fortune of the nation. He gives the history of British socialism as part of a greater history. In this respect above all the book differs from the histories of socialism and socialist ideas which we already have.

In his first volume Mr. Beer examines the chief socialist expressions of the medieval centuries and of the era before Adam Smith. This, as is pointed out in the introduction, is not because these early expressions had any direct influence, but because of an unmistakable "spiritual affinity" between them and the later ones. Possibly, also, because Mr. Beer sees in these medieval views the moral basis of modern socialism. In this first volume, further, the work of the socialist thinkers of the earlier decades of the industrial revolution is studied — that band of vigorous thinkers whose contribution to economic thought was first made clear by Menger, and by Foxwell in his introduction to Menger's book. Mr. Beer gives with far richer detail than Menger the general economic and political situation amidst which these writers lived and in the light of which they conceived their work. He does not succeed as well as Menger, however, in showing by what process of transmission their thought survived. He is not as keen in detecting the different logical forms the same fundamental economic idea may take; or perhaps he was not as much interested.

The second volume begins with the history of the Chartist movement, and alone of all histories of that movement brings it vividly within our comprehension. The later part of the same volume, entitled *Modern Socialism (1855-1920)*, covers the recent past and the present. It deals with the rise of the socialist organizations which have present importance. In this part the account of the movement from 1914 to date is not as good as the rest of the book. There is not the same completeness or the same condensation. Nor does the book reveal the extent to which the organized trade unions as such and the trade union leaders have come to the forefront of the struggle. And it does not give sufficient emphasis to the fact that the war has left Great Britain with a most serious set of new political and economic problems, above all the problem of securing again her industrial position and her pre-war level of production. It is these problems which will most certainly engage the bulk of the attention of the socialist as well as all other parties in the immediate future.

Movements, like people, often meet a "shadow line" which must be crossed before they realize that their ambitions inevitably partake somewhat of the quality of dreams. They then begin to measure themselves against the opposing obstacles. The British socialist movement has passed the line. It no longer expects to be triumphant merely because of the force of its righteousness and conviction. It has become aware that to fulfill any part of its promises even under favorable circumstances, it must be disciplined, intelligent and unselfish. Hence the present emphasis upon the need of careful preparation for all steps in the direction of socialism, such as has accompanied the agitation for the nationalization of the coal mines. Hence the view of certain leaders, such as the Webbs, that it will be better for the ultimate success of the Labour Party if it does not get a chance at the government of the country for some years. The great number of active committees that the party has constituted for the study of the problems of government and its enthusiastic support of the Education Act of 1918 are all signs of the same cognizance of the fact that there are many obstacles ahead.

Further, as Mr. Tawney says in his introduction, it is characteristic of the movement that "it has developed less through the literary succession of a chain of writers than by the renewed and spontaneous reflection of each generation upon the dominant facts and theories which confronted it." It has frequently changed its focus as the problems presented to it changed; it has learned from every passing discontent and has reformulated its program accordingly. In distinction from the socialist movements of the Continent it has been guided more by its own experience than by any original and orthodox basic principles. Being thus comparatively free from the hold of dogma it has engaged in experiment. Tho its spirit has been steady, its political and economic policy has been irregular. Or, to put the matter somewhat differently, it has been closer to the hearth fire of parliamentary debate than to the altar fires of Marxianism.

This tendency to adapt methods and program to the ends clearly perceived at any given time, accounts in part for the

fact that the British movement has rarely been deeply influenced by those of the Continent. It contributed to a result that probably would have been produced anyhow by the decided insularity of the British workingman, by his habit of thinking in terms of the country he knows and no other. It has taken the war to make the British socialist movement really conversant with continental ideas and affairs. Only once before in its history was there a real interchange of thought between the British and continental movements. That was in the middle sixties of the last century. Then also questions from the sphere of international politics — the American civil war, the Polish insurrection, the Italian struggle for independence — roused the ordinary workingman to an interest in continental happenings. This, too, was the time when the agitation of the International Working Men's Association was vigorous and Karl Marx's personal influence upon the British movement greatest. From that date to the outbreak of the war, despite the fact that various British socialist organisations had affiliations with continental bodies, it was influenced predominantly by the course of events and of thought in Great Britain. Since the outbreak of the war, however, various doctrines that had flourished more on the Continent have found a greater hold in Great Britain, particularly that of the class war. Nevertheless, it is probable that the British socialist movement will maintain a character almost as individual in the future as in the past, and will work out its destiny from the facts directly before it. It will not long borrow its prophets. On the other hand, the opinion may be ventured that the present concern of the movement with international affairs will become permanent. It will visualize itself as part of a world movement more clearly than before the war, just as the movement for national unification came to see itself as a world movement early in the last century.

Another characteristic that Mr. Beer's book brings out is that the socialist movement has been one not of the less capable and more ignorant strata of society, but of the more capable, reliant and better trained. Its more typical figures

are the sober, thoughtful and not easily discouraged artisan of London, his counterpart in the Midlands and the North, and the well-read, impassioned mechanic or miner of Scotland. The leaders of the movement, both thinkers and political figures, have been drawn from all classes, tho few indeed from the aristocracy. If we go no further back than the revival of socialism after 1880, there appear among the active leaders H. M. Hyndman, William Morris, Ramsay Macdonald, Philip Snowden, Beatrice and Sidney Webb, none of whom come from the wage-earning classes. On the other hand as long a list could be made of those leaders who did. Notable among them are James Keir Hardie, Tom Mann, J. R. Clynes, Robert Smilie, Arthur Henderson. Of recent years the movement has been in steady intellectual communication with the rest of the nation. That communication has been through personal association, parliament, press and platform; it has kept the movement alive to the position of the rest of the nation and enabled it to give and take. Of recent years, also — from the Dockers strike of 1889, it may almost be said — the officials of the more important trade unions have come to be among the central figures. It was almost inevitable that this should be so as soon as the zone of actual achievement was entered. For when concrete issues are fought out or new policies initiated, the greatest burden of responsibility falls upon the trade union leaders.

The movement has always been somewhat divided by differences in opinion and temperament. These differences were revealed as strikingly during the Chartist agitation as at any time since. They exist today. Any program of ultimate purpose and immediate action that the Welsh miners would now support, for example, would seem far too subversive to the textile works of Lancashire. The very names of some of the important trade union leaders are mentioned with venom in the *Daily Herald*, one of the organs of the revolutionist element in the movement. The Labour Party, it is true, has the support of almost all the socialist organizations in the United Kingdom and up to the present grave internal quarrels have been avoided; but many severe tests of that

unity are still ahead. Radical parties are proverbially subject to being split by violent dissensions. Great Britain today presents no more interesting question to the political observer than whether the Labour Party, devoted in the main to the application of socialist ideas, will be able to maintain its unity and discipline as the older parties do, by a constant process of adjustment and compromise within the ranks. These are some of the generalizations which Mr. Beer's book suggests, tho it does not attempt to establish them.

In the preface to his first volume Mr. Beer writes: "The History of British Socialism is but a feeble attempt to repay the enormous mental debt which I owe to English life and scholarship. I could not have written it but for my twenty years residence in this country, which has taught me how high an elevation of political and moral culture a nation must reach before it can embark upon a socialistic reconstruction of society." It may be surmised that this passage expresses the judgment which Mr. Beer has formed of the movement he has studied with such care. It explains the undertone of admiration which is in the book as well as the restraint which characterizes the narrative. Mr. Beer knows well that a socialist program could only be successfully carried out by a people that are intelligent, keenly touched by ethical considerations, self-controlled and self-denying. That knowledge sobers his closing pages. That it does not make him wholly despair of the future of the British socialist movement is the tribute he pays to it.

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NOTES AND MEMORANDA

VICISSITUDES IN THE SHIPPING TRADE, 1870-1920

THE United States has become possessed of a large ocean-going merchant fleet so suddenly that we have more ships than information about them. The few books on the subject are almost entirely panegyrics on the past glories of the American clippers, laments over the decline of our shipping, or descriptions of the present mechanisms and documents of ocean commerce. We are in the midst of the worst shipping depression since steam has been the dominant motive power on the seas, and yet there is nowhere to be found an analytic description of previous periods of stagnant overseas business. Sir George Hunter, of the British shipyard Swan, Hunter, and Wigham Richardson, recently stated that he has witnessed six depressions in his sixty years of shipbuilding experience.¹ It is the purpose of the present article to consider these successive depressions and to make some observations concerning the present one.

Valuable, tho incomplete, material for such a study has lately been made available. J. C. Gould, Angier and Company, Ltd., a firm of English shipbrokers, has made at the end of each year since 1846 a report on the charter market. The reports for 1846-69 have been lost; those for the subsequent fifty-one years, through the courtesy of the firm, have now been published in *Fairplay*.² Within the half century for which data exist steam became almost universally adopted, the iron hull rose to a brief popularity soon to be superseded

¹ *Journal of Commerce*, April 12, 1921.

² *Fairplay*, January 8-June 10, 1920.

by the cheaper steel vessel, and the *Great Eastern*, the giant of 1858 born ahead of its time (680 feet long, 18,914 gross tons, so large that it deranged the charter market upon its appearance in Bombay in 1870),¹ came to be considered a small ship in comparison with the 852-foot *Olympic*, 46,439 gross tons, and the 907 foot *Leviathan*, 54,282 tons. In this period American sea-going shipping became largely a memory, and then, almost overnight, again a serious rival of Britain. In 1871 Messrs. Gould, Angier and Company made the comment that "England still monopolises the greatest share of the carrying trade of the world, and that in more marked degree since the increased use of iron steamers; Austria, Italy, and Norway hold their usual places, but America still remains far behind, and shows but little signs of regaining her former position for some time yet."² In 1920 they said in contrast, "The Americans — if they decide to stay in the game — inevitably will become dangerous, notwithstanding they have to shake off a veritable 'old man of the seas' in the Shipping Board."³

The varying success of shipping ventures during this long period is accurately reflected in the fluctuations of trip charter rates. When a vessel is chartered on this basis — to carry a specified commodity between designated ports at so many shillings per unit of the commodity — the shipper may be said to lease the entire ship "furnished." It has been estimated that over one-half the total weight of ocean shipments in 1913 was bulk cargo moving principally at trip charter rates. When shipping is mentioned to the ordinary person he at once thinks of the *Mauretania* or some ocean greyhound, but such vessels are weighted down more with reputation than with cargo. The heavy and dirty work of the seas is done by the blunt-nosed tramps that prowl the seven oceans for profitable employment. If piece cargo rates on liners are raised unduly above the general level, soon a dingy freighter will be announced on berth to take cargo over the same route and at quotations at or under those of the more pretentious

¹ Fairplay, January 8, 1920, p. 226.

² Ibid., January 8, 1920, p. 228.

³ Ibid., January 1, 1920, p. 160.

vessels. Trip charter rates of tramp steamers can be taken as characteristic of rates and the fortunes of shipping in general.

The trend of rates between 1873 and 1913 was downward. While prices turned upward in the nineties, charter rates continued falling until 1912, and then recovered slightly prior to the outbreak of the great war. The downward tendency in the seventies and early eighties was due partly to the decline in prices and more especially to the increased use of steam propulsion. In the late eighties and nineties the cheaper steel vessels came into general employment. The continued decline of rates after the temporary advances during the Spanish-American and Boer wars is partly explained by the improved technique and equipment for handling vessels in port.

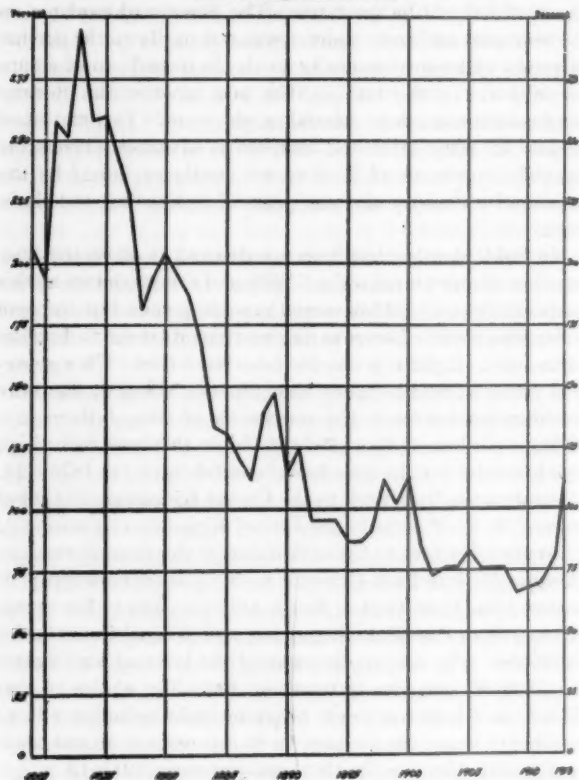
An index number has been constructed to show the fluctuations of charter rates since 1869, and a chart drawn on this basis. It stops at 1913 because the subsequent advances were so large as would obscure earlier movements if charted on the same scale. Eight trip charter rates were used. They represent rates at which cargo was actually shipped; the only modification has been the conversion of two of them into shillings per ton, so that all should be on this basis.¹ The high and low rates for the year have been taken on the following: (1) grain from New York to the United Kingdom; (2) timber from U. S. Gulf ports to the United Kingdom or Continent; (3) sugar from Java to Great Britain; (4) rice from Burmah to Europe; (5) jute from Calcutta to the United Kingdom; (6) cotton from U. S. Gulf or South Atlantic ports to Liverpool; (7) coal from Cardiff to Singapore; and (8) coal from Cardiff to Genoa. The arithmetic mean of the low and high figures for 1890-99 inclusive is taken as 100. The choice of this decade as a base was made because, while including a large number of years, the average for it corresponds almost identically with that for the three pre-war years 1911-13.

Four shipping depressions are distinguishable: (1) the period of the panic of 1873; (2) in the mid-eighties; (3) after

¹ The rate on lumber is quoted in terms of the St. Petersburg standard, 165 cu. ft. The average weight of southern lumber has been taken at 40 lbs. the cu. ft. Grain charters are in terms of quarters of eight bushels, 480 pounds.

the crisis of 1890 and the European depression of 1891-94; and (4) after the Spanish-American and Boer wars. There is a close paralleling of the business depressions occurring during

INDEX NUMBER OF EIGHT REPRESENTATIVE SHIP CHARTER RATES
Base: Average 1890-99 = 100



these periods. It appears also that a depression existed prior to the prosperous years of 1870-73 — doubtless the reaction from the conditions after the Civil War — but sufficient data are not available on this point.

1. *The Panic of 1873.* While the Franco-Prussian War was of brief duration (Germany declared war on July 19, 1870 and peace was signed May 10, 1871) the events leading up to it had an unsettling effect on European business. After the war, a short period of prosperity set in, soon to be checked by the panic of 1873. Charter rates moved rapidly upward for the greater part of three years. Sugar from Java, which had moved to Europe at as low as 55s. a ton in 1870, touched 95s. in 1871 and 115s. in 1873. The rate on rice from Burmah jumped from a low of 52s. 6d. a ton in 1870 to 102s. 6d. in 1873. The coal rate from Cardiff to Genoa advanced from 14s. in 1869 to 19s. in 1873. The extraordinary industrial and speculative activity of those years is familiar to students of economic history.

In 1874 charter rates began a downward movement that was not stopped until 1879. The year 1874 opened with trade apparently just as brisk as the preceding year, but the reaction was severe. The rate on rice from Burmah to England dropped from 102s. 6d. in 1872 to 72s. 6d. in 1875 and continued declining until it touched 30s. in 1878, a retrogression of over 70 per cent. The quotation for carrying Java sugar to Europe fell from 115s. in 1873 to 55s. in 1878 and that of coal from Cardiff to Genoa from 19s. in 1873 to 11s. in 1876. The decline during these five years was almost continuous for all rates.

While the rates in five of the ten years between 1870 and 1880 may be considered as average, the world's tonnage increased less than in the previous decade. The 13.3 million gross tons in 1860 increased by 3.5 million tons to 16.8 million in 1870, but in the seventies the increase was only 3.2 million and in percentage was 19 as compared with 26 in the sixties. However, the more efficient steam tonnage increased from 1.6 million tons in 1860, or 11 per cent, to 5.5 million tons or 27 per cent in 1880, which is a partial explanation of the general downward tendency of rates.¹ But the increase in amount and kind of tonnage is only part of the equation and informa-

¹ World tonnage figures prior to 1890 are from Kirkaldy, *British Shipping; Its History, Organisation and Importance*, Appendix 17. Later figures from the reference below, p. 139.

tion is lacking concerning the efficiency of ship operation and factors of like import.

In this decade the American merchant marine continued the long decline, begun in the sixties, and ended only by the great war. In 1860 the United States had 2.5 million gross tons of shipping registered for foreign trade, or 19 per cent of the world total; in 1870 our ocean-going shipping was 1.5 million tons, or 9 per cent of the world total; in 1880 it was 1.4 million tons, or 7 per cent.¹

2. *The Depression of the Eighties.* After several years of slack business in all the principal countries of the world, a short revival began in 1878 and 1879. The upward swing of charter rates in these years was of brief duration and was not so pronounced as in 1870-73, but the decline was more violent than the previous one. The largest gains were registered in the Far Eastern trades. The rate on jute from Calcutta to Britain rose from 32s. 6d. in 1878 to 85s. in 1880. The rate on general cargo from Bombay to Europe jumped from 17s. 6d. a ton in 1878 to 50s. in 1880. Grain from New York to the Continent, however, in spite of the large American exports reached a high of only 6s. 3d. a quarter in 1880 as compared with 7s. 6d. in 1878.

The rise in rates was temporary and the decline began in 1880. On January 28, 1881, Messrs. Gould, Angier and Company complained that freights were dull "and employment does not leave good profits."² A little over a year later (April 22, 1882) the statement was made that "the present tonnage supply effectually precludes anything like high rates from any ports."³ On June 16, 1883 a gloomier picture was painted, "Grain freights have declined to figures which are lower than the most despondent looked for, and the present indications point to worse markets and prolonged depression before any improvement can be expected."⁴

In 1882, the earliest year for which data of this kind are available, slightly over 960,000 gross tons of merchant vessels

¹ Annual Report of the Commissioner of Navigation, 1920, p. 208.

² Fairplay, February 26, 1920, p. 723. ³ Ibid., March 4, 1920, p. 801.

⁴ Ibid., p. 808.

were under construction in the United Kingdom while approximately 925,000 tons were building on March 31, 1883.¹ This "enormous rate of building" was checked by the fall in rates and by September 30, 1886 only 350,000 tons were under construction. In this decade the world's tonnage increased to 22.3 million gross tons, or 11 per cent, as compared with 19 per cent in the seventies and 26 per cent in the sixties. The American tonnage registered for foreign trade was only 4 per cent of the world total in 1890.

In this period of declining rates, however, the American sailing vessel made a last determined stand and from 1881 to 1885 proved over again the staunchness of New England-built vessels and the skill of Yankee crews. After the opening of the first transcontinental railroad and the subsequent development of the Pacific coast there sprang up a lively ocean trade in grain which could not bear the railway charge to the Atlantic. To San Francisco and Portland flocked the largest and the best sailing vessels of all the maritime nations of the world. The broad-waisted wooden New Englanders with their fine sheer and tall gleaming skysails made and held the record for passage around the Horn to Liverpool.

3. *The Crisis of 1890 and the Depression of 1891-94.* While business in America recovered rapidly after the brief crisis of 1884 and was considered good in 1886, the long depression in England did not end until 1887. Germany and France also experienced a moderate business revival in the late eighties. Shipping responded quickly. The rate on wheat from New York to Liverpool rose from the low of 1s. 6d. in 1879 to 5s. 6d. in 1889. The rate on timber from Pensacola to England jumped from 80s. in 1887 to 150s. in 1889. Sugar, which moved from Java to Europe for 30s. in 1886, had to pay as high as 52s. 6d. in 1889. Messrs. Gould, Angier and Company said of 1888 that it "will stand out as a remarkable one in the history of the shipping interest — a transformation scene of the whole trade — from abject depression to revival and prosperity."² But, as usual, the rise in freight rates was not

¹ Kirkaldy, Appendix 20. Figures were read from chart.

² Fairplay, March 25, 1920, p. 1037.

all gain. "Expenses in working steamers are as usual higher since the advance in freights. Wages have risen at most of the ports from £3 10s. to £4 5s., seamen 5s. to 10s. more than firemen. Fuel has risen 20 per cent, stores also to a small extent. Insurance is dearer in premium, and the cost of covering higher values increases this burthen."¹

The amount of tonnage under construction in the United Kingdom, which reached 350,000 gross tons in 1886, the low point of the thirty-nine years, 1882-1921, rose to 930,000 gross tons at the end of the second quarter of 1889, the usual response to rising rates.

In 1891, with the financial panic following the failure of Baring Brothers in November, 1890, a depression in Europe set in and, intensified by poor harvests, was not relieved until the middle of the decade. In December, 1892 it was said that "the close of the 1891 season gave unmistakable warning that a severe depression in all freights had commenced and the broad facts of an unparalleled over-production of tonnage indicated most unmistakably a long continuance of bad trade for ships. The depression which lasted from 1884 to 1888 was caused mainly by an over-production of tonnage during 1880 to 1883, which was, however, feeble compared with the reckless rate of overbuilding during 1889 to 1892, both years included, and this with the 'Baring' smash to intensify the inevitable evil results points to a longer consequent depression than that which lasted from 1884 to 1888. The rapidity of the collapse during the past year has far exceeded the most pessimistic forecast. . . . At the present time it is impossible to find a round voyage in any direction to show a profit, even with the cheapest and most economical boats afloat."²

In 1894 a view even more pessimistic was taken: "The shipping trade of 1894 opened with a faint spurt, and a feeble attempt to force up freights and prices of steamers on the strength of an anticipated extensive naval programme, and the exaggerated effect of the amount of work to be given out to builders. The movement was short-lived and the effect on prices was small and scarce was the month of January out

¹ Fairplay, March 25, 1920, p. 1039.

² Ibid., April 15, 1920, p. 197.

when the recoil set in, and from that time the year dragged on in monotonous similarity with its four predecessors, viz., a steady course of low unprofitable freights and declining values of the property engaged. The evil effects, however, of the written-up spurt in the first month are important as shown in the enormous output of new tonnage, interfering strikes notwithstanding. Over 1,000,000 tons (gross) of new shipping have been turned out during the year, in the face of the fact that the carrying work to be done was more than fully supplied by the previously existing tonnage without a single new bottom. . . . The philanthropy of this great body of traders, the shipowners, is evidently inexhaustible, for after five years' unprofitable work, their energy is as unfagging as ever, and the amount of new tonnage under construction and on order guarantees a long continuance of present low freights, and an effectual check against increased costs of overseas carriage."¹

4. *After the Spanish American and Boer Wars.* The latter prophecy would undoubtedly have been realized but for the Spanish American and Boer wars. After the immediate requisitioning of all suitable American tonnage, our government was forced to purchase and charter foreign ships. As a result, the price of cargo vessels rose from £5 15s. a dead-weight ton to £8 10s. and even £9 during the year. There was a rush of orders for new tonnage, the high rates and political uncertainties inviting speculation. At the end of 1895 only 730,000 gross tons were under construction in the United Kingdom, by 1898 this amount had practically doubled (1,400,000 tons).

The first effect of the outbreak of the Boer War (October, 1899) was to unsettle the charter market. Messrs. Gould, Angier and Company stated in their review of 1899 that "it is safest to look for some slight contraction in business generally, at any rate until peace in South Africa restores the vast and expanding commerce which that Continent provides."² The next year, however, they declared that 1900 had been "a memorable one in the shipping industry. It would be hard to

¹ Fairplay, April 15, 1920, p. 197.

² *Ibid.*, April 29, 1920, p. 365.

find any year during the century which can compare in respect of the vast trade done and the large profits housed. The almost universal division of abnormal dividends and large reserves set apart have restored this most important trade of the country to a sound and wealthy position after the severe strain it had passed through from 1890 to 1898. . . . The salient features of the year have been the large amount of Government transport for South Africa, India and China, — the vast and unprecedented amount of tonnage taken up on time-hire, — phenomenal prices for coal, — abatement of the plague and famine in India and consequent large increase in the trade and return to prosperity of the Dependency, — marked expansion of the ore trade, — importation of manufactured iron and steel from America and Germany to this country in the shape of rail, ship-plates, etc., — (and) large output of new tonnage.”¹ The large amount of government transport referred to was the chartering by the British government of about 2,000,000 gross tons of shipping.²

But in 1901 complaint was again made that rates were low, “the infallible result of over-building of tonnage during the period of revival in trade from 1897 to 1900 and accentuated by the general contraction in the volume of the world’s commerce. A number of fine craft are being laid up, and many more will have to follow, for at the figures at present ruling, many voyages do not pay actual outgoing expenses, leaving nothing for interest and depreciation.”³ The price of tonnage fell sharply from £9 to £10 a deadweight ton at the beginning of 1901 to £6 10s. at the close of the year. The depression continued unabated until 1911 and 1912, in fact, was accentuated by the panic of 1907. Rates reacted downward to the lowest level of the half century.

The index number, which indicates a rise of 35 per cent from the low point reached in 1895 and 1896 to a high mark of 112 in 1900, shows by 1907 a recession amounting to 51 per cent. In point of percentage the decline is the greatest in any

¹ Fairplay, April 29, 1920, p. 366.

² Ocean Shipping, prepared by National Foreign Trade Council, p. 12.

³ Fairplay, April 29, 1920, p. 368.

period of depression prior to that of 1920. Messrs. Gould, Angier and Company in the review of 1902 stated that "the result of the past year's trade, as far as 80 per cent of British shipping is concerned, is an absolute loss to the vast majority of ships. . . . Of the remaining 20 per cent of the tonnage, consisting of 'liners' proper, only the most favored companies have done well — viz., those with good mail contracts (which, of course, the receivers maintain are of no profit to them, though their accounts would often look poor without them) and the small 'set' in the run of Government transport work. . . . Over-production of tonnage, started in the years of prosperous trade, retains the impetus given to it long after the reaction of the boom has set in, and the effects of the continued over-production is greatly exaggerated by the ever-slow and gradual restriction of the volume of trade following the booming times. In proof of this we have in this year of bad and unprofitable trade for ships an out-turn of new tonnage exceeding any precedent, and a corresponding accentuation of depression in freights."¹

The year 1903 was described as "a third twelve months of bad unprofitable trade for steamers, but it has quite outstripped its two predecessors in the intensity of depression and low rates of freight";² 1904 had to be "written up as a fourth year of unprofitable work."³ The Russo-Japanese war in 1905 had little influence on rates, while 1906 is described as "somewhat less satisfactory than the preceding year";⁴ 1907 and 1908 were worse, the latter year being marked by "the unexampled depression in all freights both outwards and homewards."⁵

During the first decade of the century the world's tonnage registered the greatest percentage gain of any of the decades considered, from 29.0 million gross tons in 1900 to 41.9 million tons in 1910, or 45 per cent. By 1910 steam tonnage had increased to 37.3 million tons or 89 per cent of the total. The large increase in steamers, much of it in large efficient vessels,

¹ Fairplay, May 6, 1920, p. 437.

² Ibid., p. 440.

³ Ibid., May 13, 1920, p. 520.

⁴ Ibid., p. 524.

⁵ Ibid., May 30, 1920, p. 603.

throws light upon the falling of rates in a time of rising prices.

The earnings of cargo steamship companies from 1904 to 1911 were very low. Since 1902 *Fairplay* has compiled annually data from over fifty cargo shipping companies, owning each year an average of 1.7 million gross tons. While not all the same companies were included each year, the figures may be taken as characteristic of British companies.¹ In the eight years ending with 1911 dividends averaging 3.30 per cent were distributed to the stockholders and 2.02 per cent of the original cost of the ships was set aside for depreciation. Five per cent of the original cost is ordinarily considered as a fair amount for depreciation. However profitable cargo shipping may have been prior to 1904, the eight years listed below were certainly "lean" ones. But it must be borne in mind that during these years rates were at the low point of the half century. If data on earnings were available for the ten previous years, the average would undoubtedly be higher.

AVERAGE DIVIDENDS PAID AND DEPRECIATION SET ASIDE BY REPRESENTATIVE BRITISH CARGO SHIPPING COMPANIES, 1904-11

Year	Paid-up capital thousands of £	Dividends paid thousands of £	Per cent dividends	Cost of steamers thousands of £	Depreciation written off thousands of £	Per cent depreciation
1904	7,594	227	3.64	12,455	216	1.73
1905	8,577	286	3.33	14,818	239	1.61
1906	8,084	327	4.05	14,639	349	2.43
1907	9,167	383	4.17	16,654	413	2.48
1908	9,622	335	3.48	17,523	394	2.25
1909	9,517	180	1.89	16,758	189	1.13
1910	9,458	218	2.30	17,284	290	1.68
1911	9,884	370	3.73	18,862	506	2.68
Average	8,988	297	3.30	16,124	325	2.02

In 1911, in spite of strikes among coal miners, seamen, dock laborers and cotton operatives, revolutions in China and

¹ *Fairplay*, January 6, 1921, pp. 112, 113.

Mexico, war between Italy and Turkey and other political uncertainties, rates improved slightly. A further improvement in the next year made 1912 "memorable in that it witnessed a 'boom' in freights, which, having been for nearly a decade at an unremunerative level, at last rose sufficiently to enable shipowners to make a real profit. . . . There is little doubt that the past lean years by checking the investment of money in shipping contributed to the present satisfactory condition."¹

The period of the great war calls for but brief description. Rates had declined in 1913 and in 1914 (particularly just after the outbreak of war), to recover slightly in the last months of the year. Thereafter they skyrocketed. The index numbers and the gross tonnage launched are as follows:

Year	Index Number of Charter Rates (1890-99 = 100)	Gross Tonnage Launched (thousands)
1910	69	1,978
1911	82	2,650
1912	111	2,902
1913	100	3,333
1914	105	2,853
1915	323	1,202
1916	634	1,688
1917	1,841	2,938
1918	2,492	5,447
1919	561	7,145
1920	330	5,862

Figures for the amount of tonnage under construction at the end of each year are not available for the entire period, and the tonnage launched each year is given instead, which shows the same picture after the elapse of six or nine months. During the early years of the war merchant ship construction was subordinated to naval work, but the average annual output in 1918-20 was almost exactly twice that of the highest pre-war year, 1913.

Earnings of cargo steamship companies rose almost as spectacularly as rates. The situation is shown in the table, a continuation of that given above.

¹ Fairplay, May 27, 1920, p. 688.

AVERAGE DIVIDENDS PAID AND DEPRECIATION SET ASIDE BY REPRESENTATIVE BRITISH CARGO SHIPPING COMPANIES, 1912-20

Year	Paid-up capital thousands of £	Dividends paid thousands of £	Per cent dividends	Cost of steamers thousands of £	Depreciation written off thousands of £	Per cent depreciation
1912	10,560	721	6.82	20,221	1,464	7.24
1913	10,964	1,378	12.56	21,473	3,345	15.58
1914	10,842	1,126	10.38	20,067	1,944	9.69
1915	14,108	1,614	11.43	21,709	2,221	10.23
1916	14,822	2,743	18.50	19,352	3,346	17.29
1917	13,567	2,611	19.24	19,141	2,494	13.03
1918	12,799	1,554	12.15	16,469	711	4.32
1919	14,216	1,773	12.47	14,633	853	4.83
1920	20,738	2,381	11.48	32,469	1,969	6.06
Average	13,624	1,768	12.98	20,615	2,039	9.80

It will be noticed that while depreciation in adequate amounts was not set aside between 1904 and 1912, in five of the nine succeeding years a larger amount was written off the value of the steamers as carried on the books than was distributed as dividends to the shareholders.

The facts of the present shipping situation are plain. Nearly every day an item in some paper states that numbers of additional ships have been tied up, or that somebody estimates the total idle tonnage to be such a figure. The steamers afloat at the first of 1921 were 56.8 million gross tons, 13.7 million more than in 1913, and in addition 7.1 million were under construction. At the same time the volume of cargo moving was only four-fifths as much as in 1913.¹ Charter rates today (June, 1921) are in many instances at pre-war levels and operating expenses are still around three times those of 1913. The present depression has all the characteristics of those preceding, many times intensified: a large excess of tonnage over immediate requirements, decreased movement

¹ Gregg, E. S., "The Crux of Our Shipping Problem," *Journal of Political Economy*, June, 1921, p. 506. Also *Monthly Statistical Bulletin of the Supreme Economic Council*, vol. ii, No. 3, pp. 29, 30 for later figures.

of overseas shipments, millions of tons of steamers under construction, high ship construction and operating costs, and low rates. Shipping men, it seems, have never been able to persuade themselves in periods of prosperity that good times would not last always. Over-building of tonnage has continually recurred, sometimes coincident with a falling off of the amount of cargo shipped. In the forty-five years before the war only fifteen years were so-called good ones, two poor years for one of prosperity.

While it is impossible to get an approximation of the excess of tonnage over the current trade requirements during the previous depressions, there is convincing evidence that in no instance has the surplus of tonnage (or the amount tied up, if one wishes) been so large a percentage of the whole as at present. And today new construction, a year after the depression has set in, is going forward at over twice the highest pre-war annual rate! The conclusion seems inescapable that shipping in general is confronted with a depression of unprecedented intensity and duration. The present depression may be the most trying one that the old established lines have experienced, it will certainly test severely the new companies, and it is likely to prove almost disastrous to our government-owned fleet.

E. S. GREGG.

NEW YORK CITY.

THE LITERATURE ON THE SALES TAX

THERE is strong sentiment in this country for the repeal of the excess profits tax and the higher surtaxes on income, and the advocates of such action are proposing substitutes. One of the proposals which has precipitated debate is that for a general sales tax. The country is remarkably divided on this subject. The farmers are represented as against the tax by certain of their alleged spokesmen.¹ Labor is opposed to the tax, if we may accept the statements of some of the leaders.² The business community and others divide.

Organizations of business men have been created especially to agitate for the sales tax. One of these is the Business Men's National Tax Committee, headed by Mr. Meyer D. Rothschild, a New York jeweler.³ The organization is very prolific of literature, some of which is fairly carefully worked out. From the point of view of quality, data given, and evidence of investigation, its publications will probably take first rank amidst the pro-sales tax literature. Its most notable writings are its Bulletins entitled *Statement in Favor of a Gross Sales Tax or Turnover Tax*,⁴ *Comments on the Report of the Special Committee on Taxation of the United States Chamber*

¹ See Committee Print of the Hearings on tax revision before the Senate Finance Committee, Sixty-seventh Congress, First Session, the testimony of Mr. H. C. McKenzie, representing the American Farm Bureau, pp. 112-134; the Statement filed by Mr. T. C. Atkeson, Washington Representative of the National Grange, pp. 352-357; discussion of Mr. Walter W. Liggett, authorized spokesman for the Farmers Federal Tax League, pp. 416-429; and the evidence of Mr. Benjamin C. Marsh, pp. 363-369. This Committee Print of the Finance Committee Hearings will be hereafter referred to as Hearings.

² Hearings, pp. 655-659, testimony of Mr. Edward F. McGrady, representing the American Federation of Labor, and claiming to speak for Mr. Gompers; and pp. 359-363, Statement of Mr. W. M. Clark, vice-president of the Railway Conductors and spokesman for the four brotherhoods.

³ Committee headquarters are at 6 West 48th St., New York City.

⁴ Bulletin No. 11, entitled *Statement in Favor of a Gross Sales or Turnover Tax and Comments upon the Final Report of the National Industrial Conference Board*, by Meyer D. Rothschild, dated January 17, 1921.

of Commerce, Gross Sales or Turnover Tax at one per cent and No Other Tax on Business,¹ comments on a monograph written by Professor T. S. Adams, and the organization's sales tax *Primer*.² The two first are concise discussions of statements adverse to the sales tax, being little else than the matching of points. The third is a clear presentation of the Rothschild plan. Mr. Rothschild gave another good statement of his argument when he issued a copy of Professor T. S. Adams' monograph³ on the sales tax, with a statement of his own paralleling the latter.

The *Primer*, a considerable booklet containing 107 questions answered by Mr. Rothschild, is probably the best single statement in favor of a general sales tax. Indeed, the author claims that it is "practically the meat of the sales tax idea," containing answers to many of the opposing arguments.⁴

The Tax League of America also has been established to agitate for the adoption of a general sales tax.⁵ The only one of its publications which is worth mentioning here is its *Address to Congress*. This statement, however, adds little, containing chiefly what can be found in other places. The organization is apparently a self-constituted league of a few men who, strongly favoring the sales tax, have invited business people in various states to join them in their effort.⁶ Many organizations of business men other than these bodies which have for their special purpose the adoption of such a levy have indicated their approval.⁷

¹ A reprint of a paper read before the National Tax Association at its Thirteenth Annual Conference. See its Proceedings, pp. 180-209.

² Bulletin No. 14, dated April 11, 1921; also reprinted in Hearings, pp. 389-411.

³ Mr. Rothschild explains that this is a paper prepared by Professor Adams for the National Industrial Conference Board.

⁴ Hearings, p. 386.

⁵ The headquarters office is at 1270 Broadway, New York City.

⁶ This whole association has never had a convention, but its Advisory Board meets. See Hearings, p. 44.

⁷ The following are some of the interests which are reported in favor of some sort of sales tax: the Boston Chamber of Commerce, Hearings, p. 137; the Trade Board of Boston, a subsidiary of that body, *ibid.*, p. 153; the Trades Council of Manufacturers' Club of Philadelphia, *ibid.*, pp. 14, 15; the New York Board of Trade and Transportation, *ibid.*, p. 440 and their leaflet issued October 13, 1920; the Executive Committee of the National Association of Real Estate Boards, *ibid.*, pp. 28, 29; the National Retail Dry Goods Association (see their booklet Plan to Revise the Revenue Law of 1918); the

Some business men have come out against the proposal. Probably the group which has drawn most fire from its opponents is the Tax Committee of the National Industrial Conference Board, which unqualifiedly rejected the sales tax.¹ This Committee grew out of the hostility of the business community to the present federal revenue system. A National Industrial Tax Committee called by the National Industrial Conference Board at the suggestion of the American Petroleum Institute and of the American Mining Congress met at Chicago on April 16, 1920. After discussion, this convention agreed that an enlarged committee, comprising more interests, should be created for study and recommendations on tax revision.² The result was the so-called Tax Committee of the National Industrial Conference Board, composed of prominent representatives of various business interests in the country.³ After preparing a tentative report,⁴ the Committee decided to call a second conference of business men and others in order that its recommendations might be discussed before a final report was issued. Accordingly this second National Industrial Tax Conference met at New York

National Association of Retail Clothiers, *ibid.*, p. 177; the National Shoe Retailers Association, *ibid.*, p. 177; the National Garment Retailers Association, *ibid.*, p. 177 and p. 433; the Massachusetts Retail Merchants Association, *ibid.*, p. 153; the Associated Retailers of St. Louis, *ibid.*, p. 507; the Music Industries Chambers of Commerce of America, *ibid.*, pp. 105, 106; the National Automobile Chamber of Commerce and the Motors and Accessories Manufacturers' Association, *ibid.*, p. 227; the Jewelry Interests, *ibid.*, p. 373; representatives of the fur industry, *ibid.*, p. 522 and p. 526; and the National Association of Manufacturers. See the Report of the Committee on Taxation of the National Association of Manufacturers. Cf. also the printed copy of the Annual Address of Stephen C. Mason, President, at the Twenty-sixth Annual Meeting. Cf. also Hearings, pp. 31-43.

¹ Special Report No. 18 of the National Industrial Conference Board, pp. 1-3.

² For an account of the development of this body, see Special Report No. 18, *op. cit.*; Proceedings of the Second National Tax Conference, Special Report No. 17, pp. 1, 2, and pp. 152, 153. Cf. also Address of Mr. R. C. Allen before the National Tax Association, September 8, 1920, in Proceedings of the Thirteenth Annual Conference, pp. 169-180.

³ For the personnel of this committee, see the Proceedings of the Second National Industrial Tax Conference, p. 157.

⁴ The work of the Committee covered six months. It held a number of meetings, some taking two full days, but tax matters were studied also by sub-committees and by the members individually. They secured the assistance and advice of such men as Professors T. S. Adams and Fred R. Fairchild of Yale, Seligman and Haig of Columbia, Kemmerer of Princeton, Messrs. Otto H. Kahn, George E. Holmes, J. F. Zoller, A. E. Holcomb, Colonel Robert H. Montgomery, and others. See Proceedings, p. 152.

City on October 22 and 23, 1920. The proposal for a sales tax, rejected by the Committee, received much of the attention of the Conference. The *Proceedings*¹ of the Second Conference, therefore, contains some able and interesting discussions by members of the Committee, economists, business men, and others. The volume is a mine of information on the whole subject of tax revision, and students of taxation are in special debt for this important contribution towards the clarification of tax opinion. The Conference resolved that the Committee should complete its final report, taking into account the suggestions gained from the discussions of the convention and from further written statements which might be furnished it, and that after the report had been issued and time allowed for consideration of it, a Third National Industrial Tax Conference should be called for its final consideration.² The report³ was later issued and such a Conference was held January 21 and 22, 1921.⁴ The citizens who took part in the Second Conference, or wrote this report, have demonstrated their ability to give helpful and disinterested advice in the construction of a program of tax revision. It is the opinion of the reviewer that, judged by its quality, careful preparation, and judicious and unbiased character, the Report of this Committee stands high if not preëminent amidst the sales tax literature. It is a business men's report, and, "its conclusions are, therefore, practical rather than theoretical."⁵

Another group of business men opposed to the adoption of a general sales tax is the National Association of Credit Men,

¹ Proceedings of the Second National Industrial Tax Conference, held in New York City, October 22 and 23, 1920. Special Report No. 17 of the National Industrial Conference Board, December, 1920.

² Special Report No. 17, p. 150.

³ Report of the Tax Committee of the National Industrial Conference Board on the Federal Tax Problem; Special Report No. 18, National Industrial Conference Board, December, 1920. Hereafter referred to as National Industrial Conference Board Committee Report (N. I. C. B. Committee Report).

⁴ It has been stated that the report of the Committee was never officially adopted by the National Industrial Conference Board or by the American Mining Congress or by the American Petroleum Institute. See Hearings, p. 544. Indeed the Committee Report states: "This opinion is not necessarily in every respect concurred in either by each individual member . . . or by the organisations or industries represented by the individual members." See Final Report, p. 3.

⁵ Proceedings, p. 153.

whose Committee on Federal Taxation¹ has issued a report rejecting the sales tax, and proposing a tax on the undistributed earnings of corporations.² The Committee did not issue a very elaborate report on the sales tax nor does it develop any new arguments, being in substantial agreement with the National Industrial Conference Board Committee. The report, tho compact and carefully drawn, does little else than list the arguments with short comment.³ The Committee is evidently concentrating more attention upon the adoption of its own program than upon the defeat of another.

Still another business organization whose opposition to the sales tax has attracted considerable attention is the Special Committee on Taxation of the United States Chamber of Commerce, composed of prominent business men and economists.⁴ On December 17, 1920, the question of tax revision was submitted by referendum⁵ to the membership of the Chamber, with a report⁶ from this Special Committee, covering among other proposals the sales tax, which the latter rejected.⁷ The report is one of the most concise statements of the arguments for and against the tax. Among the other business organizations opposed to the sales tax may be mentioned the Executive Committee of the National Association of Retail Grocers.⁸

Many individuals have taken part in the sales tax discussions. Among the bankers probably the most distinguished advocate of a sales tax is Mr. Otto H. Kahn, who amits that

¹ For membership of this Committee, see the pamphlet issued by the Committee, *The Undistributed Earnings Tax*, issued December, 1920, p. 1.

² *Ibid.*, p. 5. Cf. also the testimony of Mr. E. H. Jaynes and Mr. R. G. Elliott, *Hearings*, pp. 95-104 and pp. 559-567.

³ The arguments developed in the sales tax debate will be referred to later.

⁴ For the personnel of this Committee, see its Referendum No. 34, p. 2.

⁵ Results of this Referendum are given in Special Bulletin of the U. S. Chamber of Commerce, dated April 8, 1921. Because the voting on Referendum No. 34 was not satisfactory, another, Referendum No. 36, has been issued to the Chamber's members on questions of tax revision. For a short account of tax discussion at the Chamber's recent annual meeting, see *The Nation's Business*, June, 1921, pp. 33-35.

⁶ Printed as part of the referendum pamphlet, Referendum No. 34, pp. 4-26.

⁷ *Ibid.*, p. 12.

⁸ See the testimony of Mr. John Brayshaw, Chairman of the Legislative Committee of National Association of Retail Grocers. *Hearings*, pp. 537, 538.

he has "wobbled and wavered" on it, but has now definitely committed himself to a low tax on sales.¹ Few men have done more talking for a sales tax than Mr. Charles E. Lord of Galey and Lord, New York, an enthusiastic advocate of the new measure. Altho his literature is not as elaborately worked out as that of the Business Men's National Tax Committee, he contends manfully for his cause.² Mr. Hugh Satterlee, whose opinions carry weight because of his valuable assistance to the government as a tax expert, is a pronounced sales taxer and puts forward his ideas in an effective way.³ One of the individuals who has done much for the promotion of the tax is Mr. J. S. Hord, during 1904-19 Collector of Internal Revenue in the Philippines, one of the authors of the Philippines Sales Tax Law and experienced in its administration.⁴ The Philippine success with the tax argues forcefully for such a levy here, and the administrators who had to do with it have great influence in this discussion. Dr. Henry A. E. Chandler has written an interesting and careful article entitled "The Sales Tax and Our Fiscal Problem," published by the *Commerce Monthly* for March, 1921. After reviewing the principal arguments for and against the measure, the writer concludes that a small commodity tax "offers the best means of supplement-

¹ See his *Two Years of Faulty Taxation and the Results*, pp. 43-47; *Some Suggestions on Tax Revision*, pp. 52-55; Addendum to "Some Suggestions on Tax Revision" and the *Sales Tax*, pp. 25-37 and pp. 40, 41, a reprint of his address before the National Industrial Tax Conference, Proceedings, pp. 90-94.

² See his *The Bubble Has Burst — What Next?*; *Federal Taxes and the Farmer; Taxing a Soap Bubble*; and his more pretentious *Discussion of the Tentative Report of the Taxation Committee of the National Industrial Conference Board*. See also Proceedings of the National Tax Association Thirteenth Conference, pp. 215-218, for quotations from one of his papers.

³ See his *Taxation of Sales*, also his testimony before the Senate Committee, Hearings, pp. 14-27. Cf. also the address before the National Tax Association, Proceedings of Thirteenth Annual Conference, pp. 123-128, and address before the Iowa Bankers Association reprinted in *New York Times* of January 2, 1921.

⁴ See article in *Annals* for May, 1921, pp. 193-207; statement before the Second National Industrial Tax Conference, Proceedings, pp. 63-65; and statement to the Senate Finance Committee, Hearings, pp. 64-73. Mr. Hord has described the Philippine Sales Tax in his Johns Hopkins Study, *Internal Taxation in the Philippines*, Series XXX, No. 1, Baltimore, 1907, especially pp. 19-45. Judge Lebbeus R. Wilfey, of the New York Bar, who was attorney general of the Philippines from 1901 to 1905, has also been drafted into service in advocacy of a sales tax by the Tax League. See his statement to the Finance Committee, Hearings, pp. 44-64.

ing our present fiscal system."¹ Other advocates of the change are Messrs. Robert R. Reed,² Jules S. Boche,³ William C. Cornwell,⁴ and R. S. Orcutt⁵ of the *Wall Street Journal*, admitted by one of his opponents to give a clear and logical presentation of the merits of the sales tax in contrast with the vagueness and discrepancies that are so common in most discussions of this subject."⁶

But the literature shows also the opposition of many individuals. Mr. Fayette R. Plumb, chairman of the National Industrial Conference Board Committee, independently condemns the proposal. One of the most outstanding opponents of the tax among business men, he has recently written a concise and readable statement of his position for the Senate Finance Committee, entitled "Views in Opposition to the Sales Tax."⁷ Mr. Robert G. Wilson, Chief of the Tax Division of the American Mining Congress,⁸ and Mr. J. F. Zoller, an attorney and chairman of the Tax Committee of the National Conference of State Manufacturers' Association,⁹ are opposed to the tax. Mr. Samuel Spring, a member of the Suffolk bar, has made out a strong case against it in a recent article.¹⁰ Not all those experienced in tax administration are in favor of the tax, for Mr. Arthur A. Ballantine, former solicitor of Internal Revenue, has in a recent article argued forcefully

¹ The Commerce Monthly of the National Bank of Commerce for March, 1921, pp. 3-13.

² See his article in the New York Times, January 18, 1921, p. 10.

³ See his "Release Business from the Slavery of Taxation," an address before the Economic Club, New York, November 29, 1920; "A Lively Plea for the Sales Tax," in the Weekly Review for June 11, 1921, pp. 554-556; remarks at Second National Industrial Tax Conference, Proceedings, pp. 56-58; statement before the House Ways and Means Committee, Hearings, pp. 82-100; special edition of the Bache Review, April, 1920; Review of Reviews, January, 1921, pp. 57-60; New York Times, January 30, 1920, p. 2.

⁴ See his address before the National Association of Cotton Manufacturers. Cf. his remarks at the Second National Industrial Tax Conference, Proceedings, p. 62.

⁵ Statement to Senate Finance Committee, Hearings, pp. 757-764.

⁶ Ibid., p. 757.

⁷ Ibid., pp. 84-91.

⁸ See his statement before the Senate Finance Committee, Hearings, pp. 537-545.

⁹ See his excellent paper presented to the Senate Finance Committee, *ibid.*, pp. 604-609, and his whole statement, pp. 602-616.

¹⁰ See his article "Adventures in Taxation—The Sales Tax," in the Atlantic Monthly for June, 1921.

for its rejection.¹ His successor in office, and now also a former solicitor, Robert N. Miller, and Secretary Mellon do not recommend it.² Among the economists, Professor T. S. Adams, former chairman of the Tax Advisory Board of the Treasury, and by virtue of his prestige one of the most active and persuasive opponents of the sales tax, has written and spoken a good deal on the subject.³ Professor Seligman has presented with vigor the objections to such a tax.⁴ Professor F. R. Fairchild's views in opposition to the sales tax have also become a part of the literature.⁵

Among sales taxers there is division of opinion as to the form which such a tax should take. One group, led by Mr. Meyer Rothschild, advocates an all inclusive tax, involving a levy of one per cent on the "gross turnover of the country," comprising (a) sales of all kinds of goods, wares, and merchandise; (b) sales of real property; (c) gross rents and royalties of all kinds; (d) gross incomes of public utilities; (e) gross receipts for admission to amusement places and clubs; (f) gross receipts for services rendered (not including wages or salaries which would be taxed under the personal income tax); (g) the sales of all capital assets, except stocks and bonds and other choses in action. This would replace all other taxes on

¹ See his article "The General Sales Tax is not the Way Out" in the *Annals* for May, 1921; article in *New York Times*, January 9, 1921.

² See the brief submitted by Miller to Senate Finance Committee, Hearings, pp. 671-674; and letter of Secretary Mellon to Representative Fordney and Senator Penrose dated April 30, 1921, conveniently found in *New York Times*, May 2, 1921.

³ Probably the most convenient statement of his views may be found in his small pamphlet, *Needed Tax Reform in the United States*. This is a reprint of a series of articles which appeared in the *New York Evening Post* in July and August, 1920. A series of articles by him dealing with the same subject may be found in the *Boston Transcript* for July 19, 21, 26, 28, August, 2, 4, 9, 11, 16. See his remarks at the Second National Industrial Tax Conference, Proceedings, pp. 110-113, and his monograph for the National Industrial Conference Board.

⁴ See his address, "The Sales Tax Compared with the Recommendations of the Tax Committee," Second National Industrial Tax Conference, Proceedings, pp. 70-83. See also Hearings, pp. 731-736, for a reprint of his article "The Fiscal Outlook and the Program of Tax Revision," issued by the Bankers Economic Service Inc., 1921; also Hearings, pp. 705-730, for his testimony.

⁵ See statement to the Senate Finance Committee, Hearings, pp. 571-581, and reprint of his "Case against the Sales Tax," a paper read before the U. S. Chamber of Commerce at the recent annual meeting, *ibid.*, pp. 581-586. He was also a member of Special Tax Committee of the U. S. Chamber of Commerce.

business, including tax on business incomes.¹ A second group, which is becoming more numerous, would limit the tax to sales of goods, wares and merchandise, exempting for administrative reasons sales not exceeding a certain annual amount. The most prominent member of this group is probably Mr. Charles E. Lord,² assisted by others³ who differ as to the proper rate for the levy.⁴ Still a third form of sales tax has been talked about — a tax upon only retail or final sales for use.⁵ Mr. L. F. Loree is probably the most prominent advocate of the retail tax, but he advocates also a small charge on all turnovers.⁶ The tax applied to all commodity turnovers seems to have the greatest support.

Such is the literature, interesting not only for its content but for its revelations of the methods of thinking among business men who have met the economists upon their own ground and boldly challenged them.

The sales tax debate turns upon certain large points already well known. The chief question in the discussion is the incidence of certain taxes. It is obviously a challenge to the sales taxers to have their opponents say "it would be economically unsound as well as socially unjust to shift the two billions of taxation from business and personal income taxes to consumption taxes." ⁷ Would a sales tax be shifted? And are the profits taxes which it would replace shifted to the consumers? Would the adoption of a sales tax mean the substitution of a consumers' tax for business income taxes? The economists

¹ For the best statement of this proposal, see the Comments on Professor Adams' monograph, and the sales tax Primer.

² See, for a good statement of this proposal, his *The Bubble Has Burst — What Next?* p. 6.

³ For instance, J. S. Hord, J. S. Bache, H. A. E. Chandler, William C. Cornwell, Otto H. Kahn, National Association of Manufacturers, National Retail Dry Goods Association.

⁴ Mr. Kahn, for instance, thinks it should be only $\frac{1}{2}$ per cent. See his Addendum, p. 40. Mr. Rothschild, on the other hand, advocates a rate of 1 per cent.

⁵ See the list of the different forms of the sales tax in N. I. C. B. Committee Report, p. 13. The literature which the reviewer has examined reveals very few who advocate this form of the tax.

⁶ See Minority Report of Mr. Loree as a member of the National Industrial Conference Board. Mr. Dwight Braman of New York seems to favor the tax on retail sales. Hearings, p. 104.

⁷ See N. I. C. B. Committee Report, p. 25.

who have expressed themselves upon it uphold the theory that general income and excess profits taxes are not *normally* shifted to the consumer. "Profits," says Professor Seligman, "are the result of price and not a condition of price."¹ During the war years there was a seller's market and prices would have been high anyway, the taxes being "an excuse for high prices, not the cause."² But a sales tax under normal conditions would be shifted to the consumers. Such are substantially the views of Seligman,³ Adams,⁴ Fairchild,⁵ and Hayes.⁶ Curiously enough, many of the business men advocating the tax agree that normally it will be shifted. Yet their literature is full of assertions that the taxes on excess profits and business incomes are also passed on to the consumer in higher prices. Such is substantially the opinion of Rothschild,⁷ Lord,⁸ Kahn,⁹ Clark (National Retail Dry Goods Association),¹⁰ Opdycke (Tax League of America),¹¹ Bache, Vorenberg, Satterlee, and others. They have gone so far as to estimate what portion of current prices is due to the inclusion of profits taxes.¹² Believing this, they concede that the sales tax would

¹ Hearings, p. 714.

² Adams, Needed Tax Reform, p. 22.

³ Hearings, pp. 714, 715.

⁴ Needed Tax Reform, p. 16 and pp. 20, 21; cf. also his article in Boston Transcript, July 21, 1920, p. 9. He thinks, however, it will be difficult to shift the sales tax in the near future.

⁵ Hearings, pp. 551, 552.

⁶ "The Incidence of the Sales Tax," article in Annals for May, 1921, pp. 207-212. It may be added here that Professor David Friday has attempted in his book, Profits, Wages and Prices, pp. 192-205, to demonstrate statistically that excess profits taxes have not been shifted.

⁷ Altho he is inconsistent, as will be shown later. But see his sales tax Primer, pp. 23-41 and Hearings, pp. 382, 383.

⁸ Discussion of the Tentative Report of the Tax Committee of the National Industrial Conference Board, pp. 10-14; cf. also Taxing a Soap Bubble, p. 2.

⁹ Proceedings, pp. 87-91.

¹⁰ Their Plan to Revise the Revenue Law of 1918, p. 12; cf. also Hearings, p. 199.

¹¹ Statement of Mr. Opdycke of Tax League of America to Senate Finance Committee, Hearings, especially p. 271; cf. also the League's Address to Congress.

¹² The statement which runs through most of the literature is that such taxes have increased prices about 23 per cent. See sales tax Primer, p. 25; Tax League's Address to Congress, p. 10; Lord's Federal Taxes and the Farmers, p. 4; Opdycke, Hearings, p. 271. The Taxation Committee of the National Retail Dry Goods Association puts it at about 25 per cent, see p. 12. J. S. Bache agrees with this figure, in his Release Business from Taxation.

be passed on to consumers, and still advocate it as a means of relieving the tax burden on the public.¹ Some have asked why business men, if they do not bear the profits taxes, are so concerned to lift the burden from the consuming public.² In answer it has been said that heavy taxes reduce the buying power of consumers, and that profits taxes are uncertain, and cannot be definitely calculated and provided for in advance, resulting in overcharging, and that taxes levied on book profits which may not materialize must be paid in cash.³ Opponents of the sales tax contend that if the incidence of the sales tax would be upon the consumers, that fact presents a very important objection to the change; it is not in accord with social justice to lay so much tax burden on the basis of expenditure, which is not a fit criterion of ability to pay.⁴ This has led Professor Adams, for example, to recommend "not heavy consumption taxes on absolute necessities" but on "non-essentials of widespread consumption."⁵ Some of the sales tax proponents, granting the validity of the ability-to-pay argument, suggest that at the same time that a sales tax is imposed, the exemptions under the income tax be increased to \$5,000 for married persons and \$2,500 for single.⁶ Opponents deny that such exemptions would alleviate the conditions of those who, being free from the income tax now, would nevertheless bear the sales tax.⁷ Some dispute the very argument itself, maintaining that, after all, a man's expenditure in dollars is "his own estimate of his ability to pay," and

¹ See, for instance, the sales tax Primer, p. 47; Lord's Making Taxation a Political Asset instead of a Liability, and Hearings, pp. 12, 13; the Tax League's Address to Congress, p. 10, and its Business Is Being Killed by Unwise Taxation, p. 3.

² Adams' Needed Tax Reform, p. 23.

³ Rothschild, sales tax Primer, p. 34.

⁴ See Referendum No. 34, of the U. S. Chamber of Commerce, p. 10; N. I. C. B. Committee Report, pp. 25, 26; Credit Men's Committee's Undistributed Earnings Tax, p. 32.

⁵ Adams, Needed Tax Reform, pp. 24-26. The N. I. C. B. Committee says the test is not whether a commodity is a luxury or non-essential, but whether "its use is so widespread and general, and its distribution so well established that the tax will affect use or distribution and that it will be shifted." Report, p. 49.

⁶ Sales tax Primer, p. 39.

⁷ N. I. C. B. Committee Report, p. 27.

that there is "elemental justice" in having the tax burden vary with expenditure.¹

There is no complete agreement as to the incidence of the tax even under normal competitive conditions. One advocate, tho proceeding in most of his argument on the assumption that the sales tax is shifted, maintains that "where the profits of an industry are large, the one per cent tax is not a substantial item, and may under strong competitive conditions be wholly or partially absorbed by the dealers. Where profits are small, however, every bit of the smallest tax must and will be shifted to the buyer."² Opponents assert that, if the tax is not shifted, being borne by the seller, it would become a tax on gross income, discriminating against businesses whose profits form only a small part of their sales.³ If the tax took the form of a levy on retail sales, there would be discrimination of a more serious kind against the retailers of the country, who alone would bear it. Some are concerned over the fear that in a falling market it would be difficult if not impossible to shift the tax. Certainly under such conditions the tax, possessing all the evils of a gross income tax, would bear more heavily on the businesses with profits forming a small percentage of total sales.⁴ But some sales tax advocates deny that such taxes could not be shifted even in a buyer's market, stating that "a merchant may be unable to shift a relatively high overhead, . . . he may in fact be selling goods at a loss, but a sales cost that 'runs with the goods' operating at the time upon all competitive sellers will be shifted in the price."⁵ The question of incidence is easily the most important in the whole debate.

¹ Lord, *The Bubble Has Burst — What Next?*, p. 11.

² Rothschild, *sales tax Primer*, p. 24. This kind of inconsistency has already been pointed out by Professor Adams, *Needed Tax Reform*, p. 16.

³ Credit Men's Committee Report, *op. cit.*, pp. 33, 34; N. I. C. B. Committee Report, pp. 19, 20; Adams, *Needed Tax Reform*, p. 16.

⁴ Credit Men's Committee Report, p. 34; Adams, *Needed Tax Reform*, p. 16; U. S. Chamber of Commerce Committee Report, p. 10; testimony of William Compton, *Lumber Industry, Hearings*, pp. 134, 135.

⁵ Lord, *Comments on Referendum No. 34 of U. S. Chamber of Commerce*, p. 2.

Another objection of major interest, which T. S. Adams and others¹ have raised against the general sales tax and which the advocates claim to refute, is that the tax would discriminate in favor of large "multiple-process" "self-contained" business organizations, and thus have "a tendency to drive smaller enterprises out of business." In the process of bringing commodities from raw material to finished form in the consumers' hands, there are many turnovers, on each of which a tax would have to be levied. The tax, being cumulative, would burden more lightly those organizations which combined all the processes under one management and so paid only one tax, while other smaller independent organizations would pay at each turnover. In the prices of the typical commodity there might be included taxes on several turnovers, but the prices of the output of some producers would be increased by one tax only. The usual answer to this argument by the proponents of a sales tax is that the advantage which self-contained organizations possess over "single-process" concerns is "negligible." They urge that large organizations and small independent businesses exist together, and by figures attempt to demonstrate that "even very wide differences in operating expenses now are not sufficient to prevent the profitable existence of the smaller concerns, and that a further one per cent tax could not change the situation appreciably."² Moreover, they assert, if there should be "loading" of sales taxes, such "loading" is much greater now with the profits taxes. One writer, at least, feeling the force of the objection, proposes that a tax should be collected from the self-contained concern "as many times as there are processes between the raw material and the finished product."³ Of course the objection could not be raised against a retail sales tax.

¹ Adams, *Needed Tax Reform*, p. 15; N. I. C. B. Committee Report, p. 3; Credit Men's Report, p. 34; U. S. Chamber of Commerce Report, p. 10; Fairchild, *Hearings*, pp. 583, 584; Ballantine, *Annals*, May, 1921, p. 218.

² Rothschild, *Primer*, pp. 42-46; Lord's Discussion of Tentative Report of N. I. C. B. Committee Report, pp. 15, 16; National Retail Dry Goods Association Report, pp. 12, 13; Tax League's Address to Congress, pp. 21, 22.

³ Hord, *Annals*, May, 1921, p. 206.

Another important question discussed in the sales tax literature is the effect upon the system of marketing and distribution of goods. The claim is made that leasing and rental of goods would supercede straight sales and that selling agents would take the place of wholesalers, resulting in the elimination of certain types of middlemen and making difficult the definition of "sale."¹ Discussion on this point gets no further than expressions of opinion. The sales tax advocates claim that it would cost more than 1 per cent to evade the tax in this way,² that the government is now collecting taxes on transactions of the same sort, that the existing specific sales taxes have produced no such changes, and that business men would not lease goods for which they had a cash market.³ In answer to the statement that sales taxes in the past and in certain modern countries have been adopted only as a last resort, and have had an unfortunate history,⁴ the advocates point to the Philippine, the Canadian, the French and even the Mexican tax, for which they claim good results. The Canadian and French taxes, it must be admitted, are too recent to afford a fair test.⁵

There are certain other advantages of a sales tax which its advocates claim for it, besides its alleged success in other countries and its effect on the cost of living. Undoubtedly it contrasts favorably with the complications of the present profits and income taxes. One who reads the literature is impressed with the fact that one thing which business men greatly desire is certainty and simplicity. They want a tax which they can calculate without the complexities of a determination of net income, invested capital, profits percentages, and technical accounting concepts.⁶ The sales tax, they claim,

¹ N. I. C. B. Committee Report, pp. 21, 22; Credit Men's Committee Report, p. 31. The question is also raised in Adams' monograph circulated by Rothschild.

² Satterlee, *Taxation of Sales*, p. 12.

³ Rothschild, *Bulletin No. 11*, p. 16.

⁴ N. I. C. B. Committee Report, pp. 23-25; Hearings, pp. 705-713, statement of Professor Seligman.

⁵ Rothschild, *Bulletin No. 11*, pp. 17, 18; Tax League's Address to Congress, pp. 13-19; sales tax Primer, pp. 12-14; Hord, *Annals*, May, 1921, pp. 204, 205.

⁶ Explanatory statement by Business Men's Tax Committee, April 5, 1920; also the leaflet, *Gross Sales or Turnover Tax at one per cent in lieu of all other taxes on Business*, p. 1; Hord, *Annals*, May, 1921, pp. 197, 198; sales tax Primer, p. 51; Satterlee, *Taxation of Sales*, p. 15. Evidence might be cited *ad infinitum* on this point.

meets these requirements. "Every business man will know what his tax will be and can make provision accordingly."¹ It would relieve enterprises, they assert, from governmental interference with their conduct. It would allow conservative reserve policies. Business men would simply report their sales, and pay in monthly or quarterly installments amounts calculated as percentages of certain totals.

The literature shows also that some support of the sales tax comes from a number of industries which feel that they have been discriminated against in having to pay certain special war taxes.² These demand that the burden be shared with other industries, in order that the rate may be lower on all. Another argument presented by the advocates is that it would be light and spread over all consumers. One opponent has admitted that the tax would be low, and that this might be enough to offset many objections.³ The advocates claim also that it would be easily administered.⁴ Some opponents feel that its administrative simplicity has been overemphasized,⁵ altho one prominent writer admits that its administration might be less difficult if the excess profits tax were repealed.⁶ One of the advantages conceded by enemies, to which its friends like to point, is that it would bring in large revenue.⁷ The sales taxers claim, too, that it would be superior to profits taxes in that it would bring in the revenue in bad times as well as good, since sales fluctuate less than profits.⁸ A number of difficulties have been presented concerning the all-inclusive turnover tax advocated by Rothschild and others,⁹ and the retail sales tax,¹⁰ but these are not of

¹ Explanatory Statement, Business Men's Tax Committee, op. cit.

² Batteries, *New York Times*, January 2, 1921; sales tax Primer, pp. 22, 23; Hearings, pp. 107-112; 227; 245; 514; 525; 526.

³ Adams, Monograph, op. cit.

⁴ Primer, p. 47.

⁵ N. I. C. B. Committee Report, p. 22.

⁶ Adams, Monograph, op. cit.

⁷ Tax League's Address to Congress, p. 12; Primer, p. 49.

⁸ *Bache Review*, April, 1920, pp. 2, 3; Business Men's National Tax Committee Circular, April 5, 1920, p. 3.

⁹ For a good statement of these, see T. S. Adams' monograph, op. cit.

¹⁰ A concise statement of the objections to the retail sales tax may be found in Credit Men's Committee Report, pp. 36, 37, and National Industrial Conference Board Committee Report, pp. 30, 31.

practical importance since the limited turnover tax on commodities seems to have the greatest number of supporters.

Such are the larger issues in this tax debate. In the opinion of the reviewer, the tax, whatever its incidence in the immediate future, would normally be a burden on consumers. Just as certainly the excess profits tax which it would replace, or any other business income tax which might be taken in its stead, is not passed on to consumers. Do its other advantages overcome this disadvantage? If we adopt it, we should do so with our eyes open, without illusions about such a change removing any of the "tax content from the consumer's dollar."

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